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PHYSICIAN TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS; ASSISTANT PHYSICIAN TO THE MILLER GENERAL HOSPITAL AND TO HAMPSTEAD GENERAL HOSPITAL

If excuse be needed for a further paper on this subject we may quote an annotation from this journal on a series of papers dealing with abscesses of the lung: "From small collections of clinical impressions such as these it may become possible in time to obtain an individual experience which will bring to bear at the right moment all the weapons available for use in this distressing condition." At present the expressed opinions of authorities differ *toto cælo*, and in consequence it is difficult to assess treatments adequately.

These tentative views and uncertainties will be appreciated by those who have followed the discussions at the Royal Society of Medicine and elsewhere. It appears to us that a great deal of this hiatus is due to the lack of adequate classification of the various *types* of the disease, each of which requires a different method of attack. During the past five years we have spent much time in investigating such cases and have collected a series of 100. In October, 1930, we described in this journal 27 cases treated medically and surgically; the results left much to be desired, and at the end of that year we started our bronchoscopic clinic. In 1932 we recorded a further 25 cases treated bronchoscopically, and here the results were so satisfactory that we were encouraged to continue. During the past two years a further 55 cases have been through our clinic; these have been sent from all over the country and in various stages of the disease, mainly rather advanced. On the experience gained from this increasing number of cases we have somewhat modified the opinions on treatment which we have previously set out, and in this paper we propose to state our present views, with the full realisation that further experience may cause their further modification.

Classification

The diagnosis of the ordinary type of lung abscess has been sufficiently ventilated elsewhere, and on this occasion our concern is with those cases difficult of diagnosis and more especially with recognition of the *type* of abscess present, as a lead to prognosis and the best method of treatment. Generally it may be conceded that in a case of lung abscess, after pus has been expectorated, the symptoms are of more importance than the physical signs; before this X rays are of more help than either.

We have no knowledge of interstitial abscess, but in our experience it is rare for an abscess to attain any degree of maturity without some periodic discharge from the bronchus.

In considering the pathological types of abscess it is usual to divide them into "acute" and "chronic," whilst some authors make a special feature of the gangrenous type. This classification is certainly not an adequate one on which to base treatment. The division of acute and chronic is an arbitrary one, depending to some extent on the rapidity of breaking down, but more commonly on a time factor, the condition being regarded as acute for the first eight or ten weeks, after which it automatically becomes chronic. We are of the opinion that the classification should be more elaborate and suggest some such division as the following.

1. Pre-abscess stage of pneumonitis.
2. Pyogenic type { Simple (with or without localising reaction). / Gangrenous or liquefactive type.
3. Putrid or spirochætal type { Secondary to simple. / With local reaction. / Fulminating gangrenous.
4. Multiple: Simple pyogenic or gangrenous.

A definition of the reactive conditions mentioned is necessary.

On X ray examination the simple abscess begins as an homogeneous shadow in the lung field; this may clear up, but usually, later, in the centre of this is seen a darker circular area due to cavitation. At this stage any of three things may happen: (*a*) the cavity after drainage may close and the area of pneumonitis disappear; or (*b*) the area showing cavity may rapidly extend until the whole area affected by pneumonitis becomes a cavity—which may be enormous. This we would define as the liquefactive or simple gangrenous type. Lastly, (*c*) the cavity may remain but may be surrounded by a condensed area of tissues recognised in radiograms as a limiting ring.

The putrid or spirochætal type, if primary, breaks down rapidly and the X ray picture is similar to that of the acute spreading pyogenic type, except that the general condition of the patient is worse; however, if the spirochætal infection is secondary to a pyogenic abscess there is often a primary localising reaction and the progress may not be so acute.

A patient with lung abscess is usually very ill, but occasionally the systemic symptoms may not be at all conspicuous; especially is this so in apical abscess with good drainage. Except in these milder cases the disease appears to have a serious effect on the psychological state of the patient and loss of morale is often a very marked feature. The temperature is usually of a high grade with a rapid pulse, but when the pus has discharged either naturally or by drainage the temperature and pulse-rate fall. A continuous high or rising pulse-rate, even though the temperature is slight, is usually an indication of a spreading non-localised type of disease with a bad prognosis apart from surgical intervention.

It must be borne in mind that the simple abscess in its earlier stages may present periods of normal temperature and no sputum, giving the erroneous impression that healing has occurred—a hope shattered by an exacerbation and further expectoration of pus. A fact of even more importance is that the abscess may be spreading whilst the patient shows no systemic symptoms.

Though the patient with a simple lung abscess may be a sick man, his state is nothing in comparison with the profound toxæmia met with in the true gangrenous type. Seldom is a patient seen so utterly ill as in this condition; a persistent high temperature, rapid thready pulse, constant expectora-

tion of nauseously offensive sputum, and a terrible depression of mind are the distinguishing features, although all our cases have had similar physical signs—viz., the abscess has been basal or posterior, the percussion note dull or tympanitic with marked bronchial breathing and absence of added sounds, the sputum particularly offensive, and of a typical green-brown appearance.

Bronchoscopy in Diagnosis

Bronchoscopic investigation is essential in every case and will reveal the position of abscess, the type, the presence of foreign body or growth (simple or malignant), and the presence of a pressure obstruction (not uncommon in upper lobe abscess) due to glands —tuberculous, malignant, or inflammatory. Absolute reliance cannot be placed on a *negative* X ray film, especially in any case clinically suggestive of abscess; and in this type of case simple lipiodol examination by any of the ordinary routes may be of no use, as it is recognised that lipiodol given this way seldom enters an abscess cavity owing to œdema of the mucous membrane of the bronchus of drainage. On several occasions with negative X ray findings bronchoscopy has shown us pus coming from one of the branch bronchi, and a bronchoscopic lipiodol has proved the presence of an abscess; this occurs especially in those cases which present in X ray antero-posterior view near the mediastinum or in relation to the diaphragm in a mesial position; the bronchus of drainage in these cases being the dorsal branch or the terminal internal and posterior branches of the lower lobe bronchus. If surgical intervention should become necessary the *exact* position of the abscess must be known. Those who have witnessed at operation a search for an imperfectly localised abscess and have seen the disappointing results from insufficient drainage will appreciate the difference when the abscess is accurately located, opened at the first incision and drained from the point of greatest advantage.

Even if postural drainage is to be employed this cannot be efficient unless the bronchus which is draining the abscess has been determined. In many cases the abscess is not seen in the X ray as a definite cavity or, if seen, is surrounded by an area of pneumonitis or fluid which obscures the optimum point of attack. Physical examination and radiology alone cannot be depended on for accurate localisation, they only give a rough indication and, as mentioned above, may fail to disclose an abscess at all.

Topical diagnosis by means of the bronchoscope is done in two ways. First by careful search of the bronchial tree, noting the branch down which the pus is coming. (Reference to Figs. 1 and 2 will show the relationships of the branches to the pulmonary parenchyma.) Secondly, by injection of lipiodol up the branch from which the pus is coming, followed by radiography. The amount of lipiodol used must be judged on the suspected size of the cavity; overfilling is to be avoided, but a large gangrenous cavity needs a large amount to outline borders.

Radiograms must be taken antero-posterior, postero-anterior, and lateral, and upright as well as prone, for it is sometimes difficult to distinguish an alveolar filling from a cavity, and a fluid level seen in the upright is a great help in this differentiation. An important point is that bronchiectasis may be shown, precluding a cure by medical means. A thorough bronchoscopic search must be made, each bronchial branch being examined methodically with the telescope. No atropine should have been given before, as it may dry up the secretions so that no discharge may be seen.

If, for example, we take the right side, in the upper lobe bronchus the pectoral branches can be seen by slight movement of the head to the left, the transverse axillary branch by slightly more deflection, whilst the anterior and posterior ascending branches are shown by use of the retrograde telescope; thereafter search of middle, cardiac, and terminal lower lobe bronchi is easy. Overflow into lower bronchi may cause difficulty, but by cleaning out secretion and making patient cough the site can usually be ascertained.

Those cases with empyema and broncho-pleura fistula may give rise to some difficulty in differential diagnosis. When lipiodol is injected through the bronchoscope it sometimes happens that a small quantity enters the empyema cavity, clinching the diagnosis; in others the fact that the lipiodol in the lung fails to extend as far peripherally as the chest wall will suggest the presence of fluid. In two cases this has proved useful in diagnosis.

Therapeutic Bronchoscopy

We shall now consider whether bronchoscopy has a place in the treatment of pulmonary abscess. There can be no possible doubt that its value in diagnosis both as to the type and the position of abscess is so great that treatment without it cannot be justified.

Treatment must be considered both from the

FIG. 1

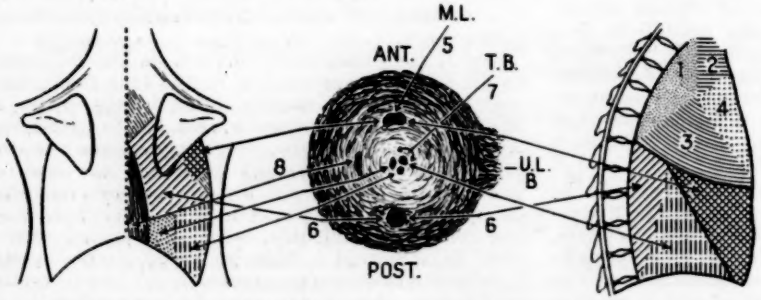

FIG. 2

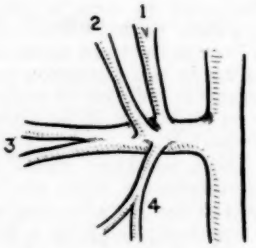

FIG. 1.—Diagram of bronchial tree viewed through bronchoscope. The numbers 1–4 relate to the upper lobe bronchus (U.L.B.) and are explained in Fig. 2. 5 = middle lobe bronchus. 6 = dorsal bronchus. 7 = terminal bronchi, going to lower lobe (anterior, posterior, and axillary). 8 = cardiac branch.

FIG. 2.—Upper lobe bronchus. 1 = posterior apical branch. 2 = anterior apical branch. 3 = transverse axillary branch. 4 = anterior pectoral branch. The numbers on the right of Fig. 1 indicate the corresponding areas of the lung.

pathological and the anatomical standpoint, the areas affected to be taken in the following order.

Apical.	Upper lobe.
Peripheral.	In any lobe.
Mid zone.	
Hilus.	
Basal or diaphragmatic.	

There is a considerable difference of opinion as to the frequency with which an acute abscess clears up on medical treatment with postural drainage, figures varying from 10 to 60 per cent. In our first series the proportion of cases was 60 per cent., but in our latter series, however, it has been very small; the majority of our cases have a history of more than two months, and the fact that they are mainly segregated cases renders comparative figures unreliable.

Whatever the figure may really be—if only 40–50 per cent. of acute abscess or pneumonitis break down or become chronic—we should certainly try to prevent this happening. It has generally been advocated, and in the past we have supported this view, that an abscess or suspected abscess may be treated medically for two months before more active measures are taken. It would, however, seem inadvisable and not in accordance with medical teaching to wait for an abscess to form before starting treatment to abort it, which may in our opinion often be done.

We believe bronchoscopic drainage and instillation of Gomenol is often successful in causing resolution at this stage. To wait on an incipient abscess because it may resolve is to risk a large abscess occurring before it is realised; not uncommonly these are apical and difficult to treat. No harm can come of bronchoscopic treatment which, if successful, may save the patient a serious operation.

For effective bronchoscopic drainage a definite technique is required. The drainage-tube *must* be passed *up* the branch bronchus of drainage; it is often found that even so no pus can be evacuated. It is impossible to insert the ordinary drainage-tube more than 1 or 2 inches, with the result that when suction is applied the distal walls of the tube close and prevent aspiration (Fig. 3). With our operating bronchoscope we can introduce a catheter which will sometimes pass 4–5 inches up the branch bronchus, and can be seen radiographically entering the abscess cavity. The casual introduction of a drainage-tube is useless, except in cases in which there is a great possibility of the condition healing naturally.

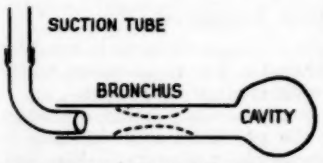

FIG. 3.—Diagram illustrating closure of bronchus by suction when ordinary drainage-tube is inserted.

For lavage and disinfection we have tried various substances—T.C.P., eusol, weak solution of novarsenobenzol, and a dye solution of acriflavine and gentian-violet as recommended by Kolmer. On the whole we have found our original preparation of 10 per cent. gomenol oil in olive oil or lipiodol with normal saline for lavage the most satisfactory. If the bronchus be obstructed by granulations or hæmorrhage is occurring, as is not uncommon in a healing abscess, silver nitrate solution is applied locally.

The necessity of early treatment in infective conditions to prevent serious consequences and the gangrenous type of infection is exemplified in infected foreign bodies, some of the worst cases being infected teeth lost down the trachea, pieces of tartar inhaled at operation, or peanuts. Very soon after inhalation infection spreads, and within a week two zones may usually be seen in a radiogram. A zone of collapse and external to this a zone of pneumonitis, the latter tends rapidly to break down and infect the collapsed area, and in consequence a large and usually gangrenous type of abscess is formed in a short period. A similar condition may also be seen in a bronchus obstructed by new growth.

CASE 1.—Sent to us a week after loss of tooth down bronchus followed by hectic temperature 24 hours later. Radiography: area of collapse and pneumonitis. Tooth removed, infected area swabbed with clove oil, immediate fall of temperature. Two days later following respiratory exercises to expand lung, the temperature rose to 101°, settling gradually within week. No further symptoms.

CASE 2.—Admitted three weeks after inhalation of tooth. This patient had a gangrenous abscess and died soon after admission, which emphasises the necessity of early treatment in all such cases.

The spirochætal gangrenous abscess or the pyogenic gangrenous type.—In these cases medical or bronchoscopic treatment is useless and dangerous because of the delay it causes. Bronchoscopy should be done once to fix the site of the abscess with lipiodol, and then again the day before operation to empty the cavity in an attempt to prevent post-operative inhalation of the abscess contents. This drainage often greatly improves the condition of the patient and the temperature may fall; but one must not be led astray by it, as this type of case can only be dealt with by surgical procedure, the rising pulse-rate usually indicates all is not well, and the operation should be done whilst the improvement is present.

We have had seven cases of this type: four acute gangrenous, two chronic gangrenous, and one pyogenic gangrenous. In 1 of the gangrenous cases the patient died within 48 hours of admission; 3 acute and 1 chronic were surgically drained soon after admission. All died. One chronic gangrenous of one year's duration had two bronchoscopic drainages with operation, and after progressing for six weeks died of hæmorrhage. The pyogenic case had a three months' history, was drained bronchoscopically three times, and operated on, the position of the abscess was exactly defined, and patient made a good recovery. Cases such as these must be treated surgically at the earliest possible moment to avoid their becoming chronic.

Simple pyogenic type.—In these cases bronchoscopic drainage will usually effect a cure. In the gangrenous type bronchoscopic drainage may be successful, the number of treatments necessary may vary from 2–3 in acute cases to 50–60 in chronic. On the whole the progress of cases with well-marked local reaction is better, despite the statement of some authors that after fibrosis has taken place open operation is the only treatment and the result of operation is rendered less favourable. When there is no localising reaction and the condition appears to be spreading, as seen radiologically, even although drainage may be adequate and the temperature has fallen, a rising pulse-rate is an indication for considering surgical treatment.

The necessity for absolute rest, and sanatorium régime for these patients, whether under postural or bronchoscopic drainage, cannot be overstressed. After a few bronchoscopies the patient usually feels well; temperature and pulse are normal, weight is gained, and sputum reduced to little or none. But the cavity is still patent though clean, and if the patient is allowed to go out of hospital there is usually a recrudescence. The warning does not apply to the patient with chronic abscess, refusing surgery, in

whom drainage is being conducted as a palliative measure.

The mere fact of recurrence in a "cured" case does not negative further bronchoscopic treatment.

CASE 3.—Large abscess of some months' duration. Five bronchoscopies; healed. A year later relapse; abscess same size. Three bronchoscopies; healed and has remained well (26 months) up to date.

It is important that the benefit from bronchoscopy should not blind one to the fact that in chronic cases complications may occur, such as bronchiectasis associated with the abscess, and the patient may be cured of his abscess and left with bronchiectasis. Enthusiasm must be tempered with judgment. That the patient with chronic abscess with bronchiectasis can be kept fairly well by this means is proved by five patients with bronchiectatic abscesses who do their work and have had occasional lavage for four years and refuse any other treatment.

In those cases of new growth simple or malignant complicated by abscess the condition of the patient may be much improved and rendered more comfortable by drainage and insertion of radon to render the bronchus permeable. A man has attended our clinic for three years with a recurrent (? simple) growth of left upper lobe whose abscess was cured in this way. We have used radon and drainage with success in this way not only in malignant cases who have an abscess but as a prophylactic in cases without abscess in whom there is no hope of permanent cure.

These principles in the treatment of abscess must be modified according to its situation. The apical upper lobe abscess is unfortunately fairly common and though the condition of the patient may not be so bad if drainage is free, the prognosis is not so good owing to difficulties of drainage both bronchoscopically and surgically. Bronchoscopically it is difficult to drain on account of the mechanical problem of getting a drainage-tube up the branch bronchi, as may be seen by the diagram (Fig. 2). This can be achieved by means of a curved steel spring stilette in a gum-elastic catheter and the operating bronchoscope, but is not easy. Surgically they present difficulties of approach.

Owing to the rigidity of the upper part of the chest and the smaller amount of surrounding lung tissue it has not the same opportunity of compression by healthy lung as those lower down. Despite these difficulties they may sometimes clean up in a surprising manner.

CASE 4.—Five months' history. Right upper lobe abscess size of golf ball with well-marked wall. Completely healed after four bronchoscopic drainages.

CASE 5.—Right upper lobe; four months' history; good progress after ten bronchoscopies, but wanted operation. Open drainage. Recurrence after six months, now again on bronchoscopic drainage. Condition good but abscess still patent.

CASE 6.—Right upper lobe; one year's history during which abscess had appeared to heal on medical treatment. Recurrence. Two bronchoscopic treatments followed by rapid healing.

Peripheral type.—By this is meant abscesses in close proximity to the pleura in any lobe. The chance of infection of the pleura causing a local empyema or rupture of the abscess with infection of the whole pleura is very real. Attempts to collapse with artificial pneumothorax, done in error, owing to the abscess being mistaken for a tuberculous infiltration, cause infection of the whole pleura.

CASE 7.—Was admitted to sanatorium with what was supposed to be an early apical lesion. Artificial pneumothorax was induced and followed by hectic temperature. It was realised that an abscess had been collapsed and patient was admitted to Victoria Park Hospital. A free empyema was drained and after several months' severe illness patient made a good recovery.

Mid-zone abscesses in the middle third of lung field are in communication with larger bronchi and are very suitable for bronchoscopic drainage. There is little fear of infection of pleura and there is plenty of adjacent lung tissue to help close the cavity.

Hilus region.—These are even more accessible to bronchoscopic treatment. This is the type of case in which artificial pneumothorax has been specially recommended, but it is hard to collapse a tuberculous cavity in this situation and to obtain complete collapse in abscess is still more difficult.

CASE 8.—Four years ago an abscess at right root which lipiodol would not enter. Treated for two years with artificial pneumothorax, during which time patient very ill though about. A.P. stopped two years ago; lung now out. Cavity still present; lipiodol enters. Patient in good health but a dry cavity is still present. We agree with Kindberg and Monod, who state that if A.P. is done it may have to be continued indefinitely.

Basal type.—These are often as difficult to treat as to diagnose; they are often inaccessible to surgery and may be mistaken for subphrenic abscess as they are often accompanied by elevation of the diaphragm. Bronchoscopic drainage is the best method of treatment.

CASE 9.—Seen four years ago with a 16 months' history. He was surgically explored and nothing found; phrenic avulsion and A.P. were both of no avail. A bronchoscopic lipiodol showed a cavity in angle of diaphragm and mediastinum. This patient had about 30 bronchoscopies and has now been well for two years.

CASE 10.—Appendicectomy in a general hospital followed by fever and pain low on right side with elevation of diaphragm. Subphrenic abscess suspected; needling negative. Temperature settled and he left hospital. Within a week had an hæmoptysis and was admitted to Victoria Park Hospital. Bronchoscopic lipiodol showed abscess right base. Treated by bronchoscopic drainage and sent to convalescent home; returned with pleural involvement; open operation confirmed lung abscess. Cure.

Surgical Measures

Failing bronchoscopic drainage we have to consider the other methods available for those cases which have not cleared up with medical treatment.

The high operative death-rate in primary operation is serious and a risk the physician is disinclined to take unless it be absolutely necessary. We feel, however, that if the patient be adequately prepared for the surgeon by drainage, localisation, &c., and be operated on at the most suitable time the results might be very much improved, and our cases referred to surgeon show this. The most suitable cases for surgery are those in which the bronchus of drainage is the dorsal branch of the lower lobe bronchus whose area of supply is posterior and below scapula.

In cases which have been submitted to open operation the bronchoscope is useful as a means of washing out the infected zone from above; this may be continued by instillation with gomenol through a laryngeal catheter.

CASE 11.—Post-tonsillectomy abscess of one year's duration. Bronchoscopic drainage rapid improvement. After some months, ill-advisedly sent for a change, came back much worse. Operation advised. First operation unsatisfactory. Second operation modified cautery lobectomy. Condition continued bad till washing from above was employed, after this rapid improvement and patient has now left hospital on occasional lavage, with very slight discharge of sputum.

The above remarks apply to incision of abscess; the figures for lobectomy in this complaint have been too bad for serious consideration in the past, but with improving surgical technique in this direction it is possible that in the near future this will be considered the best treatment for lower or middle lobe abscess complicated with a residual bronchiectasis.

Phrenic avulsion.—Sporadic and isolated reports on the cure of lung abscess by this means appear from time to time, and it is suggested that it helps by completing drainage when this is free. We have, however, to face the fact that drainage usually is not so free after this operation owing to kinking of the bronchus. Therefore we do not use it, nevertheless we agree that it may have a definite use if bronchoscopic drainage is continued after the operation has been done, but probably a phrenic crush is more advisable than avulsion of the nerve; this was brought to our observation by two cases of abscess which were referred to us after phrenic avulsion had been performed at a general hospital. After the operation both patients had become much worse, but both were treated with regular bronchoscopic drainage and although one of them had more than one abscess they rapidly improved, healed, and have remained at work for three years.

Encouraged by these results we tried phrenic avulsion on a case of lung abscess, healed by bronchoscopic drainage, which had a residual bronchiectasis which was not improving on the treatment. After the operation he was allowed to go home and went steadily downhill, lost 2 st. in weight, and was spitting 15 oz. a day. However, on the resumption of bronchoscopic drainage in hospital he rapidly gained more weight than he had lost and sputum was reduced to a trace.

Plastic operations on the chest wall are much the same in their result as phrenic avulsion and we now never advise them.

Artificial pneumothorax.—In the majority of cases to induce a pneumothorax means the production of an unlocalised empyema, and the feeling in this country is adverse to this, except possibly in the hilus case, to which we have mentioned an objection above. Nevertheless certain continental authorities have suggested producing an empyema in this way as a means of a cure.

We are bound to say that in those cases in which this complication has arisen—whether the artificial pneumothorax and empyema has been produced advisedly, in error (as in the case quoted above), or as a sequel to bronchoscopic treatment—the ultimate result has usually been cure of the abscess. The patient, however, has such a stormy passage and often seems so near death that one hesitates to initiate the condition. Moreover we have found that empyema secondary to bronchoscopic treatment tends to be circumscribed and of better prognosis; and we do not regard it as a much-to-be-regretted complication.

Results

Of the 55 cases, 8 were admitted in a condition in which no treatment could avail. The duration of the disease was mostly over three months, the shortest being three weeks and the longest one year. Palliative operations were undertaken in some of these cases, but for obvious reasons they are not included in surgical results.

Of the remaining 47 cases, 2 were submitted to immediate operation. A woman who had refused all treatment for a year was admitted with a secondary empyema which was drained. She recovered from the operation but died later of cerebral embolism. Recovery took place in one case of pyogenic gangrenous type, with a three-months' history, treated by lobotomy. The remaining 45 cases were considered suitable for bronchoscopic treatment. The five youngest were aged 4, 6, 7, 13, 14, and all of these recovered. Three (6·6 per cent.) died whilst under treatment. One who had been making good progress was allowed to go out, lived unreasonably for six weeks, and came back with the lung in a gangrenous condition. One died of cerebral abscess. One outpatient said to have died of influenzal pneumonia, but probably a septic pneumonitis. Seven (15·5 per cent.) were referred for surgical treatment; 4 had lobotomy and of them 1 died, while 3 with secondary empyema recovered. The lobotomy death was that of a patient discharged a year previously apparently cured, who had a baby after discharge; she then had an attack of influenza and a light-up, but she did not return for six months. Death from hæmorrhage took place at the commencement of operation.

To sum up, there were 2 surgical deaths in 9 cases, and the total of deaths in the clinic was 5 (11 per cent.). For the surgical results in those cases in which surgery became necessary we have to record our thanks to Mr. W. H. C. Romanis, Mr. R. H. O. B. Robinson, and Mr. T. Holmes Sellors.

Conclusion

Hitherto the bronchoscope as an accessory in the treatment of lung abscess has not received its due in this country. The reason is not far to seek. The physician, who has the greatest interest in following these cases medically, has not had so far any experience with this instrument; the laryngologist has slight acquaintance with the lungs and no opportunity of following the disease, whilst the surgeon tends to prefer the knife. This is not surprising considering that our work has entailed 2000 bronchoscopies in the last four years.

We should lay it down as a dictum that every case of lung abscess should be watched and treated bronchoscopically so that if necessary operation may be undertaken at the optimum period. Each case must be considered with an open mind and enthusiasm for this method must not allow one to continue when experience has shown that open operation is desirable.

STRICTURE OF THE EXTERNAL URINARY MEATUS

By A. Ralph Thompson, Ch.M. Vict., F.R.C.S. Eng.

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An abnormally small external meatus is not uncommon, and I have, in my hospital notes, records of 70 cases of this nature. All these cases belong to the male sex and, although a similar condition is found in the female, I have not included in this series any cases occurring in women. By stricture is meant a narrowing of the external meatus, and such narrowings are well known to occur with hypospadias, and pinhole meatus, but with these two conditions the present paper is not concerned.

The causes acting in the production of a meatal stricture are fairly numerous. In the present series there are 33 patients of fifty-one years and over, and 32 between the ages of twenty-one and fifty, which indicates that this form of stricture commonly affects elderly and old men. In this connexion it cannot be

doubted that the change in the condition of the penis in later life is to be taken into account. Thus the penis becomes smaller in middle and old age, and so the prepuce comes to cover the glans more completely than in younger people. In addition, the more prominent abdomen prevents the penis being seen, and it is less frequently washed than it used to be. Smegma is collected under the foreskin, and its retention may lead to considerable irritation; and as such a collection must be associated with the presence of organisms, inflammation may be produced, and fibrosis occur as a consequence. This fibrous tissue is developed under the mucous membrane near the meatus, which it throws into wrinkles, and so the meatus, instead of being a longitudinal slit with bilateral plaques, as it usually is, becomes circular and star-shaped.

The mucous membrane in chronic cases looks dry and scaly, but in recent cases the glans and meatus may appear "weepy." Both appearances are quite characteristic, and unlike gleet, the weepiness comes from the surface, not the inside of the urethra. The stricture is rarely as long as half an inch, and is often shorter. I have, however, notes of a case in which the stricture extended three or four inches up the urethra from the meatus.

The condition is one for which it is not difficult to indicate the treatment, but some cases are not so satisfactory as others in responding to treatment. Some seem to be cured, whilst others go on for a long time without showing a cure, though they may be much improved. Such strictures may produce precisely similar results as stricture occurring elsewhere, whether gonorrhœal or traumatic. Thus local perineal abscess may occur, also cystitis and stone in the bladder, ascending lymphatic infection leading to perinephritis, and septic nephritis. Meatal stricture must never be overlooked in connexion with the diagnosis of urinary obstruction and, indeed, it may be additional to the common causes of obstruction such as enlarged prostate or urethral stricture. The strictured area of the meatus may be very painful and tender, and the greatest tact and caution should be used even when a very small instrument is being used; we should always recollect that the meatal region is the sense organ of the bladder, and is the locality where the desire to micturate is felt. This tenderness and pain may be very conspicuous.

As meatal stricture occurs so often in old people it may be suggested here that such people should roll back the prepuce once a week and wash the glans and corona with warm water and soap; but some force is needed to get the smegma off the glans and away from the folds of the rolled back prepuce. The prepuce should always be replaced in position after such a washing.

The causes of the condition of meatal stricture may now be considered more fully. It is a little difficult to isolate the cause in a few of the cases, but generally speaking, the cases may be classified as follows: meatitis with advancing age; meatitis with or without phimosis in younger people; gonorrhœa; syphilis; after circumcision.

Meatitis with Advancing Age

The possible pathology of this condition has already been mentioned, but some of the cases give a history of gonorrhœa, and others have undoubtedly had this trouble, so that in certain cases gonorrhœa cannot be excluded as a possible cause, even in old people. The conditions which have already been described were present in all the types of stricture at present under consideration. The first case in my notes illustrates this point.

CASE 1.—Male, aged 70, had frequency and difficulty in completing the act of micturition. No appetite and great thirst; frequency of micturition at night. Gonorrhœa twice about fifty years ago. A stricture in the usual region manifested itself ten years later. The patient also had an enlarged prostate, and a definite stricture at the meatus, and at the first attendance no instruments were passed, owing to the difficulty of introducing even a small one, but when he next came a coudé catheter No. 8 was passed with some difficulty. A fortnight after this the patient reported that he was very much improved and was passing his water well. He was given malt and belladonna, and reported well a week later.

In this case the meatal stricture may have been gonorrhœal, and it certainly seems to have contributed to the urinary difficulties of which the patient complained. In the next case the stricture at the meatus was unaccompanied by any history of venereal disease, or evidence of another stricture, nor was there an enlarged prostate.

CASE 2.—Male, aged 61, complained of painful and difficult micturition. The pain was referred to the end of the penis. He was a long time in passing water, and it practically only dribbled. A meatal stricture was present, and only admitted a small probe. The stricture was dilated gradually and three weeks after the first attendance a metal bougie (No. 18/22 French size) could be passed easily. Yellow oxide of mercury ointment was used as a local application. Green iodide pills were also administered, not bcause the case was considered to be one of syphilis, but because of the well-known antifibrotic effect of mercury and the iodides. The patient said he felt very well after this treatment, and at the end of two months was discharged with no sign of stricture.

It is recognised that hypospadias may be associated with a small opening, which though small has, as a rule, a perfectly healthy appearance, but in the succeeding case of hypospadias there may have been a good deal of fibrous tissue formed as a result of chronic irritation and inflammation.

CASE 3.—Male, aged 70, was admitted to out-patients with difficulty in micturition which had culminated quite recently in retention. A meatal opening was found after some difficulty, owing to the formation of scales and debris round the orifice due to chronic inflammation. The stricture was rapidly dilated up to No. 18/22 (French size) metal bougie. A fortnight after this it was noted that there was a hypospadias, and my house surgeon at the time, Mr. Le Vieux, now of Mauritius, slit the opening on its ventral aspect. I am not sure that I agree with this method of treatment, but the patient did very well and reported seven months later able to pass his water satisfactorily.

Attention has already been drawn to the value of mercury and iodides when accompanied with instrumentation, but in many cases the use of strychnine and digitalis will do much good as in the following case.

CASE 4.—Male, aged 70. He was said to have an enlarged prostate, but I could not agree with the diagnosis wholly. The meatus was very small, and he was using a catheter himself, as he could not pass any water without its aid. There was a thin purulent discharge from the meatus. It was not reported that there were gonococci in the specimen sent for examination, and the discharge itself was hardly of the character that one associates with gonorrhœa in old men. In my experience when old men get gonorrhœa they get it very badly. He was advised to continue his catheterisation as he lived in a distant part of Kent, and could not come regularly to the hospital. He was given liquor strychnine ♏ 2 and tincture of digitalis ♏ 2 three times a day before meals. Three months later he was seen in the genito-urinary department at Guy's Hospital, when he reported very well generally and locally.

I believe that these two drugs, by stimulating the bladder muscle, enable that organ to get rid of all its contents, which must allay the irritation due to stagnation of the urine in the bladder; but they must not be given unless the obstruction is overcome with instrumentation. I have found these two drugs most useful in similar cases.

Including these 2 cases, I have 18 cases of similar strictures occurring at the meatus, and associated with the conditions already described—viz., a diminishing penis, a lengthening of the prepuce, retention of smegma, and chronic irritation leading to fibrosis and the formation of a stricture at the meatus. The ages at which this condition manifested itself were 54, 55, 61, 66, 66, 69, 70, 70, 70, 71, 71, 72, 74 and 78, the average being 67. Clearly in some of these cases circumcision will do good, as in the following:—

CASE 5.—A male, aged 69, had phimosis with a meatal stricture. Circumcision was performed and the stricture was dilated. There was a completely successful result with which the patient expressed himself very pleased, though he had demurred when operation was suggested.

CASE 6.—Male, aged 71. There was eighteen months' history of difficulty in micturition in the standing position, but there was no difficulty when he was sitting down. (This sort of symptom is always worth noting, but I do not, at present, understand its significance.) Pain at the end of the penis occurred at the termination of micturition. Under the prepuce a good deal of thickening could be felt, but owing to the fibrosis the foreskin could not be retracted, and it was suggested that there might be a cancer. He was admitted into the hospital and circumcision was performed; no cancer was found, but there was much fibrosis round a small meatus, and after some difficulty a No. 6 (English) olive-headed catheter was introduced. This was not retained in position. Gradual dilatation followed and four months later No. 11 (English) catheter could be passed easily.

Sometimes the preputial orifice is so tight that urine may be collected between the prepuce and glans. If this happens it may produce a swelling which may be quite alarming to those who have not had much experience in these cases. The following history illustrates this.

CASE 7.—Male, aged 66, came to out-patients with a red irritating patch on the under surface of the glans. There was a history of one month's duration, and the foreskin was tight, and the glans harder than usual. There were a few enlarged glands in the inguinal regions. Circumcision was performed, and the patient did extremely well after the wound had healed and dilatation of the meatus had been performed. At the end of six months he was discharged. There was definite evidence that drops of urine had collected in this region, and perhaps had led to the redness and irritation. A similar case will be related later.

To make this series of cases more complete a case will now be quoted in which a meatal stricture may have been responsible for a fatal termination, with the common condition of ascending nephritis.

CASE 8.—Male, aged 71, with meatal stricture. He was recorded as a patient who would in all probability give little or no help to the surgeon, and when a student notices this kind of mental temperament it usually means that the patient is uræmic. The stricture was dilated, but his condition was so poor that he died in 12 days, having developed parotitis on both sides. At the autopsy it was found that he had a prostatic abscess, and pyelonephritis.

Of course everyone knows that prostatic abscess as a rule gives rise to urgent symptoms such as great pain and tenderness with pyrexia, but I have had three cases in which it did not do so, and they all died with septic nephritis. In this case the abscess in the prostate may have led to the ascending condition, and the meatal stricture may have had very little to do with it.

Meatal Stricture in Younger People

I now have a series of cases occurring at a younger age, in which there was little evidence of an acquired phimosis. The meatus was perfectly visible, but there certainly was a fibrotic condition of the meatus with a stricture. The first case is interesting in that a long after-history is known, and a possible cause can be assigned for the stricture. It is interesting also because a definite cure has been effected.

CASE 9.—Male, aged 44, was admitted to out-patients in August, 1919. He gave a history of a symptom which is very common—viz., dysuria at the beginning of the day, the flow becoming better during the day. He was treated with medicines, and omitted to attend till February, 1921. He then said he had passed two small stones per urethram, but there was no history indicating from which kidney they had come. He had a weeping meatus of a circular star shape, and a tight meatal stricture. The mucous membrane was puckered and thrown into folds, thus producing the star-shaped meatus. He had had both syphilis and gonorrhœa 30 years previously, and a strong positive Wassermann reaction was given. There was also a positive Kahn's reaction, but no other evidence of syphilis. Nor were there any signs of a chancre. There was no sign of any other stricture to indicate that the meatal stricture might have been gonorrhœal. If neither syphilis nor gonorrhœa had caused the stricture, it was possible that the passage of the stones, which was attended with some difficulty, might have started the process. At one time streptococci were found in the slight discharge from the meatus.

The patient was most regular in his attendance, and in nine months' time, after gradual and continued dilatation very gently performed, there was very little fibrosis round the meatus which resumed its normal shape and appearance. Later he was cured completely, but continued to attend as he developed neurasthenia. He is still coming to out-patients, after 13 years, and is a useful demonstration of a cured meatal stricture.

A second case may now be recorded, who has been attending for a long time, and even now can hardly be said to be "out of the wood."

CASE 10.—Male, aged 19. He came up first in May, 1929. He is an intelligent youth, and gave a history of dysuria for seven years. This commenced at the age of 12, a little young for a gonorrhœal stricture to develop. He had been dilated by a private doctor, and when he came first was using an instrument upon himself for the purpose of keeping the meatus open. The condition had improved slightly, but on the night before admission he could not pass the instrument. In accordance with my practice of never doing too much with a young man on his first appearance, he was given mercury and potassium iodide, and four days later an olive-headed bougie (No. 3 English) was passed. As the urethra was very tender, not much progress could be made. The patient was given hyoscyamus and buchu with an alkali, and at the beginning of July (six weeks after admission) a No. 6 olive-headed bougie was passed. Yellow oxide of mercury was used for lubrication of the instrument. There was still much pain and tenderness.

At the end of July he was admitted to hospital. The urethra was opened in the perineum, and the bladder was drained through the wound with a catheter "en demeure." After the wound had begun to granulate a laminaria tent was introduced into the meatus. On discharge there was a small fistula, which healed up very quickly, and this fact suggested that there was less obstruction at the meatus. The meatus remained large, but was not normal in appearance as in Case 9. It was patulous and circular, and appeared as though it were passive. The patient developed epididymitis, and this prevented dilatation being done as adequately as it might have been. Assiduous attention prevented the epididymitis going on to suppuration, and on Oct. 29th, 1929. Nos. 10, 11, and 12 (English) olive-headed bougies could

be passed, though the last was very tight and caused a little bleeding. At the end of 1929 he was having a metal bougie (18/22 French) passed. After this he came regularly every fortnight, and an 18/22 metal bougie was passed every time. The pain was always great when an instrument was passed. The inside of the meatus was puckered and white as late as November, 1932. It is stated that the meatus was then dry, though it had been weeping before.

In this case I was never convinced that mercury and potassium iodide did any good in the way of relieving pain. The patient continued to attend, and at the end of 1934 internal urethrotomy was performed. He is certainly better, there is not so much pain, and the meatus is large, but there is still some fibrosis round it. This type of case is very difficult in its pathology and treatment.

The average age of this condition of meatitis without phimosis is thirty-one; the number of cases is 8, the youngest being nineteen and the oldest forty-three, so that the age is younger than that of the usual type of gonorrhœal stricture.

Meatal Stricture due to Gonorrhœa

The cases which are probably gonorrhœal in origin are more numerous and usually respond well to treatment. They are attributed to gonorrhœa because they all had a definite history of infection, and in many there was a definite stricture in the usual position of a gonorrhœal stricture; moreover, the ages of the patients were the usual age for gonorrhœal stricture. The cases number 17. The average age is forty-eight, the youngest being thirty and the oldest seventy-four. The first illustrative case is as follows:—

CASE 11.—Male, aged 46. There were two strictures including the meatal one, and the history was complicated by attacks of malaria, and "influenza." The patient was said to have had eight attacks of the latter disease recently, but I have learnt to discount this diagnosis when urinary troubles are found; for example, cystitis may begin with general symptoms of fever and malaise, and any frequency is often considered part of the general illness. The patient had had gonorrhœa twenty-one years previous to admission. There was a stricture six inches up the urethra, and also a meatal stricture, with the note that there was an "india-rubbery" feeling of thickening round the meatus of one quarter of an inch long. This extended all round the meatus, and it was firm enough to prevent proper manœuvering with a metal instrument. A No. 1 (English) olive-headed bougie, "en baionette," was passed and tied in. In a patient with a history such as has been recorded the smaller the instrument which is passed the better for the patient, provided the route has been properly secured. This instrument was succeeded by a No. 5 (English) bougie at the end of three days, and later gradual dilatation was performed. During the succeeding eight months a No. 18/22 (French) metal bougie was passed regularly every fortnight.

This case is quoted, not because it is suggested that the meatal stricture was the great cause of difficulty, but because the stricture higher up was undoubtedly gonorrhœal, and for this reason the meatal stricture may be held to have a similar origin. The limitation of manœuvering with a metal instrument when there is a meatal stricture is important. Forcing of a meatal stricture causes much pain and may lead to spasm in the deeper parts, thus producing shock and faintness. Such a method of treatment should never be adopted even under an anæsthetic.

Two other cases may be recorded.

CASE 12.—A male, aged 34, who probably had a gonorrhœal stricture in the region of the bulb, and also had a meatal stricture. The stricture was subjected to internal urethrotomy in hospital, and a few days after the operation a laminaria tent was used to dilate the meatal stricture. The patient responded to treatment very well and at the present time, five years after his admission, attends regularly, and a metal bougie (No. 18/22 (French) is passed every time.

CASE 13.—A male, aged 54, had gonorrhœa at the age of 18, and had a stricture dilated at the Westminster Hospital. Later he came to see me at Guy's Hospital and undoubtedly had a stricture deep in the urethra; but the main difficulty lay at the meatus. The stricture at the meatus was dilated, and the patient attended for six years, a No. 18/22 (French) bougie being passed regularly and easily.

From my notes it would appear that these gonorrhœal strictures at the meatus give rise more frequently to incontinence and dribbling than to retention, although in cases of congenital pinhole meatus such an event is not uncommon.

Syphilitic Stricture of the Meatus

The next cause of meatal stricture is syphilis. The stricture is caused by a chancre which occurs at the meatus, probably complicated by sepsis, for a chancre elsewhere on the glans is not, in my experience, associated with much formation of fibrous tissue, though the old scar may be easily visible. But a chancre situated away from the meatus will not be subjected to the stream of passing urine. I have notes of 14 cases. The average age is forty-seven, the youngest being twenty-one and the oldest seventy-two. This age incidence is very much the same as that of gonorrhœal meatal strictures, and both differ markedly from that of the first class which, as we have seen, occurs in elderly and old men. Occasionally a chancre itself, whilst it is still active, will give rise to obstruction, but this is probably due to the temporary adhesion of opposed parts with dried serum, and debris.

CASE 14.—Male, aged 28, came to out-patients with a history that for two days he had been unable to pass water. He not only had the sensation that there was something stopping the flow, but the tenderness was so great that he was also afraid to pass it. It is interesting to note that I recorded that the patient felt as though he had influenza, which is very significant in connexion with my previous remarks anent the diagnosis of influenza in what are really urinary cases.

The next case appears to show that the healing or partial healing of a chancre may lead to stricture very rapidly.

CASE 15.—A male, aged 33, contracted syphilis, and on his admission stated that he had had a sore on the penis for a fortnight. The glans was œdematous, and it was noted that there were "bands on the glans." The meatus was minute, and only admitted with difficulty a No. 3 (English) olive-headed bougie. Novocain was applied, and the meatus slit on its ventral aspect. There was no other stricture. Appropriate remedies were prescribed in the way of drugs, and the patient was very much better when he ceased attending.

CASE 16 is that of a male aged 35 who contracted syphilis at the age of 22, and was treated for chancre at the Lock Hospital. He had had four attacks of gonorrhœa, and there was a stricture in the region of the bulb. I very rarely come across cases of double stricture inside the urethra, so that the note that there were two strictures within three inches of the meatus was of importance, as the meatal stricture was associated with the presence of the scar of the old chancre. The presence of "bands" on the meatus had been noted already, and in one case it is reported that there is some growth of the mucous membrane over the meatus.

CASE 17.—In this case the prepuce had become adherent over the glans, and offered so much obstruction to the passage of urine which had collected under it, that it had to be incised as the house surgeon was afraid of extravasation. There was also evidence of bladder retention, and such a stricture may lead to cystitis. Perhaps a little unlike the

other cases of metal stricture, these meatal strictures due to chancre may be accompanied by retention of urine. This patient had been admitted to another hospital for retention, where nothing was done in the way of instrumentation, but the retention was apparently overcome by drugs and rest. He came to Guy's Hospital after his discharge from the other hospital, and the meatal stricture was gradually and continuously dilated. He was discharged able to pass his water well.

Healed chancres appear to cause worse strictures at the meatus than any other form of stricture there. One very bad case was the following:—

CASE 18.—A male, aged 72, was in a miserable condition with retention and overflow owing to fibrosis following the healing of a meatal chancre, to which caustic silver had been applied.

Another characteristic of these syphilitic strictures which are due to a chancre is the very great pain that accompanies them. In my notes frequent reference is made to this symptom, but fortunately mercury locally and by mouth affords one most efficient means of relieving it. I am not sure that mercury does much good in the other classes of meatal stricture, though I have seen it useful. It may be that this pain is an important factor in the production of retention, to which attention has been drawn.

Meatal Stricture following Circumcision

Finally, as cause of meatal stricture the operation of circumcision must be held responsible. I have in my notes reports of 4 such cases. I do not think that the operation had been badly performed, and perhaps the wound had become septic, but in two of the cases it is not possible to reject actual damage to the meatus as the chief cause. Careful attention by the operator should be paid to the actual locality of the meatus, and the glans under the foreskin which is being removed. Potassium bromide, grs. 5 every four hours, should be given to those who are beyond childhood before and after operation. A very light diet, and the prohibition of visitors of either sex for two or three days after the operation, would probably reduce even the small number of meatal strictures following circumcision. The age of all these 4 patients is just under nineteen, so that they are much younger than any of the other series of cases.

Conclusions

(1) Acquired strictures of the external urinary meatus are not rare. (2) They occur relatively frequently in old men, and may then be associated with a progressive phimosis, due to the diminution in size of the penis, the absence of proper cleanliness, and the collection of smegma. (3) In younger people chronic meatitis may occur with or without phimosis. This condition may lead to rather obstinate strictures. (4) Gonorrhœa occasionally produces meatal strictures. (5) Chancre may lead to a very painful form of stricture, and retention seems to be more common with chancre than with any other of the causes related here. (6) Stricture of the meatus occurs rarely after circumcision. (7) Stricture at the meatus yields, after a varying period of time, to instrumentation and the use of suitable drugs.

BRISTOL HOMŒOPATHIC HOSPITAL.—Mr. W. Melville Wills has given £10,000 to this hospital of which he is president. Mr. Wills bought the site and built the institution at a cost of nearly £150,000 as a memorial to his son. His donations now total about £180,000 towards capital endowments and expenditure, and he has given some £74,000 towards maintenance.

THE DIAGNOSIS OF ABNORMAL HIP CONDITIONS IN CHILDREN

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IT is a sound axiom that we shall never diagnose the presence of any condition of even moderate rarity unless we bear its possibility constantly in mind while we examine our patients; also we shall make many unnecessary errors if we do not use a systematised scheme of examination. In preparing this paper I have attempted to meet these two requirements by making rough sketches of the pathological conditions which we are likely to meet in the hips of children, as demonstrated by X rays, and by reviewing the significance of the symptoms and signs which appear on routine clinical examination.

The Conditions Encountered

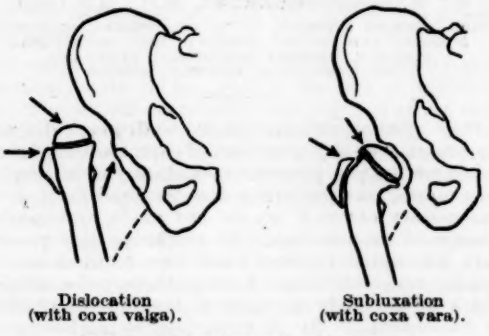
1. *Congenital dislocation of the hip* is really a faulty development of all the structures of the hip-joint, bones, cartilage, ligaments, and muscles, and is present at birth, though rarely recognised so early as is desirable. The radiographic diagnosis depends on noting whether the whole of the femoral head lies below the Y (triradiate) cartilage (Fig. 1).

2. *Rickety coxa vara*—i.e., bending of the neck of the femur and irregularity of the upper epiphysis—develops in early infancy, but the deformity may not be noted until, and may increase after, walking (Fig. 2). The most extreme deformation occurs when the condition is complicated by *congenital syphilis*.

3. *Coxa plana* is a lesion of the epiphyses of both femur and pelvis, thereby indirectly deforming the hip-joint (Fig. 3). It occurs from about the sixth year onward, but often is not recognised till several years from its onset, whose date is hard to determine, because different cases progress at very varied rates, while the early symptoms are vague. As the initial deformity tends slowly to increase, cases are sometimes first brought for treatment during puberty. If they are brought at the onset, the X ray signs may be entirely absent and the diagnosis is only clear after some months, when the radiogram is apt to demonstrate changes occurring in the course of the most thorough treatment. The condition was described almost simultaneously by Calvé, Legg, and Perthes, whose names have been attached to it, while the earliest description by Waldenström of Stockholm is overlooked, because he called it tuberculous; yet double cases may have one side become tuberculous, and cases of undoubted tuberculosis may end with X ray appearances indistinguishable from it. In other words, its primary cause is still undiscovered and may not be a single factor. The characteristic features are flattening of the femoral head, preceded by "fragmentation" of its structure and followed by shortening of the neck and opening-out of the acetabulum.

4. *Slipping of the upper epiphysis* of the femur (or rather of the shaft upward on the neck) usually develops during adolescence, especially in the flabby, over-weight child, whose appearance suggests endocrine disturbance, who may have lowered sugar tolerance, partial gigantism, and weakening of other bones, such as the tibia and femur at the knee, giving severe knocking. The head for a time keeps its

normal shape and situation; the neck slips upward (Fig. 4). The infantile type of slipped epiphysis is usually overlooked till puberty, when increase of height and weight make conspicuous the mechanical strain on the hip-muscles by producing a waddling



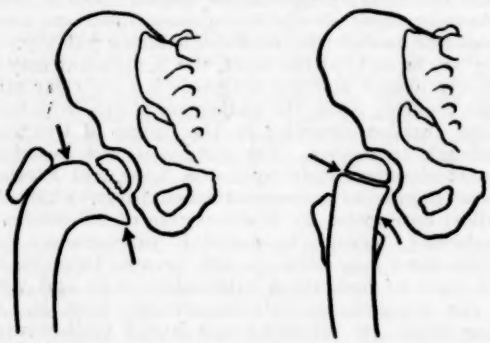
Dislocation (with coxa valga). Subluxation (with coxa vara).

FIG. 1.—Dislocation and subluxation.

gait. The deformity is a great exaggeration of the slipping that first occurs at puberty; it has been described in infants, and I have seen a severe case in a child five years old, in which the condition was irreducible by manipulation.

5. *Coxa valga*—i.e., overgrowth of the neck of the femur with loss of the normal angle, so that neck and shaft run almost in one line—may be a result of infantile rickets, or develop as a growth abnormality in tall children (Fig. 2).

6. *Tuberculosis of the hip* (or neighbouring bones) has been left thus far on the list, because, though it is usually the first diagnosis made in a child that complains of the hip region, it is, in the area where I practise, one of the rarer causes. This is fortunate, because its treatment is infinitely tedious, even in early cases, and its result in the best hands is nearly always a stiff hip. Fig. 5 is a composite picture of three early types, which, as shown by the drawing on the right, are nearly always combined in the late stages. There may be a focus in the under surface of



Coxa vara. Coxa valga.

FIG. 2.—Coxa vara and valga due to rickets.

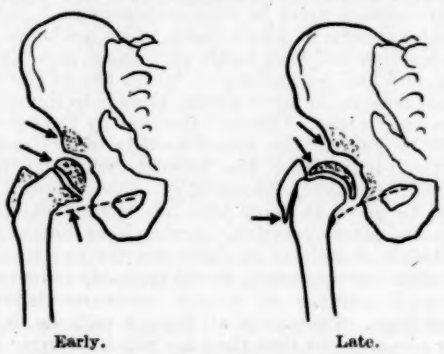
the neck of the femur, or in the roof of the acetabulum, both extra-articular at the start, or a pure synovial lesion. Each of these may and usually does spread to neighbouring parts and all that treatment can do is to limit the spread by reduction of strain and by stimulating a layer of calcification to form a limiting barrier all round.

7. *Non-tuberculous arthritis* of the hip is of many types. The rheumatoid type, like Still's disease, seldom seems to begin in a single hip, but is usually symmetrical and usually is first noticed in the knees and ankles, though the hips may be affected simultaneously. There is a syphilitic type in which the metaphyses, and, or epiphyses, are diseased as well as the joints. It is the X ray appearances and other clinical signs such as depressed bridge of the nose which are characteristic.

Arthritis of true rheumatic origin, less acute than rheumatic fever and another of quite unknown origin, are probably the commonest causes of hip symptoms in children. As they clear up after recumbency for a few weeks or months and leave no radiographic traces of their presence, it is hard to gain knowledge of the causes. It is probable that the majority of so-called tuberculous hips which healed in the past with very little splinting or recumbency were of this nature. Those who wish to claim credit for their successful termination can still call them very early tuberculosis, and no one is in a position to dispute the diagnosis, except in such as give a negative Mantoux test to high concentrations of tuberculin.

8. *Osteomyelitis* of the upper end of the femur of pyogenic origin is apt to simulate arthritis of the joint and probably is associated with fluid in the hip, even if this contains toxins rather than organisms.

9. *Purpura* with hæmorrhage into the joint, or under the periosteum in the neighbourhood, also simulates acute arthritis and must be diagnosed by



Early. Late.

FIG. 3.—Coxa plana (Perthes, Legg, Calvé).

the presence of subcutaneous and other hæmorrhages elsewhere or by the characteristic transverse line of dense calcification across the metaphyses of the chief long bones. Sometimes the pre-operative diagnosis is impossible.

Clinical Picture

HISTORY

The history of hip conditions in children is seldom very enlightening and sometimes positively misleading. Thus there is usually a history of *injury*. Now, though this may have been the factor which localised an infection, yet as all children are constantly damaging themselves, it is more likely that the parent has merely recalled some insignificant fall in order to associate it with the disease. *Pain* also is misleading as it is often referred to the knee rather than the hip.

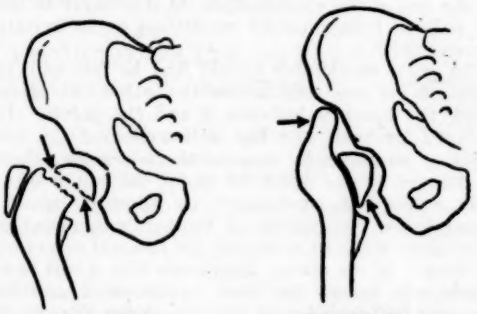
The *duration of the symptoms*, as noted by the parents, is apt to be equally misleading, for it depends entirely on their attention and powers of observation, both of which are often limited. Thus when a radiogram demonstrates a dislocation, which must have been present at birth, the mother may assert most emphatically that the child only limped from the age of four years; because it was then she expected

it to acquire proper balance, and the failure of this attracted her notice. Sometimes the X ray shows destruction of the head of the femur by a slow disease like tuberculosis; yet the parents say the child only limped for a week.

Symptoms which are of value are *night-cries* and *night-sweats*, and *shrieking* when the child is bathed or handled; but they do not differentiate between an inflamed joint and the tender muscles of acute poliomyelitis. Loss of weight and loss of appetite in a previously healthy child are of importance; yet many children are constantly pernickety over food without definite cause. Complete giving-way of a limb or *inability to walk* of a child who has previously walked well may represent many causes, from sudden paralysis to severe pain of any kind.

EXAMINATION OF THE PATIENT

Two precautions are essential, and a third desirable, in the physical examination of the child.



Adolescent. Infantile type.

FIG. 4.—Slipped epiphysis.

1. To strip him completely. No obscure hip condition will be spotted by looking between the half-lowered trousers and the half-raised shirt.

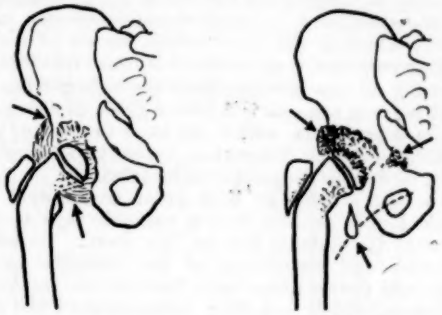
2. To get him to walk and carry out voluntary movements *before* a hand is laid on him which may start pain.

3. To have him walk along a straight line, such as a strip of carpet, to a definite objective, such as a mirror, which latter should be fitted in every clinic and out-patient department.

1. *Gait.*—If the child is able to walk he may sway over to the affected hip at every step. This has two possible interpretations: (*a*) a reflex effort to reduce the grinding movement on inflamed cartilage, so that it is present in very early stages of tuberculosis of the hip, when patients do not keep off the bad hip, and also in coxa plana; (*b*) to reduce the mechanical strain on weak muscles, so that it is common in the slightest degree of paralysis of the glutei (the throw being backward when the gluteus maximus extensor of hip is involved) or when the tension of the abductors is upset by raising of the great trochanter, through dislocations and bending of the femoral neck.

2. *Lordosis* (hollow-back) may be the result of such a gluteal weakness, or may be a mechanical compensation for fixed flexion of one or both hips, whether permanent, or only from muscle-spasm. It is very conspicuous in dislocation cases, because the glutei have lost their fulcrum and the whole pelvis tips forward. The shoulders are thrown far back to keep the centre of gravity over the feet.

3. *One heel raised* from the ground may be due to organic shortening of the tendo Achillis from many causes, or from the effort to keep the pelvis level in spite of a short leg. In the former case, even if some shortening exists, it is rarely equivalent to the equinus, so that the affected side of the pelvis tips up. Actual shortening may be permanent ("true") from defective growth, or bone destruction secondary to many causes, or temporary ("apparent") from spasm of the hip-flexors and adductors (Fig. 6). Thus the



Early. Late.

FIG. 5.—Tuberculosis.

spastic hemiplegia, the neglected poliomyelitis with foot-drop, the early tuberculous hip with spasm and the late tuberculous hip with bone destruction may all have this swaying gait with lordosis and one heel off the ground.

4. The power to *balance on one leg* may throw further light on the cause. If the heel now comes to the ground, one may know the equinus attitude is compensatory to shortening, or the spasticity slight. If the patient can stand quite or almost unsupported, but the shoulders are thrown still further over the affected limb, one can exclude dislocation and diagnose severe muscle-weakness (various causes). Dislocation is demonstrated by *Trendelenburg's sign* of dropping of the whole pelvis on the femur, so that the sound side falls instead of rising. A mild degree of this seems to occur in tall flabby children, in whom the only defect revealed by X rays is coxa valga with the neck of the femur two or more inches long.

5. The *recumbent attitude* should next be observed, or first in children too young, or too ill to walk.

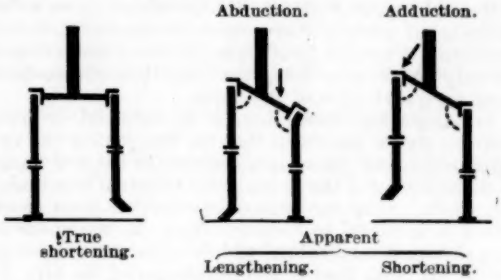


FIG. 6.—Shortening, true and apparent.

Falling outward of the foot on the affected side is common in hip abnormalities. It may be due to spasm in the very earliest stage of tubercle or other synovitis of the hip; or due to the weight of the limb in dislocations; or to shortening of the unopposed sartorius in poliomyelitis of the hip-muscles; or to twisting of the neck of the femur in rickets and slipped epiphysis. Young infants tend to lie with the lower limbs symmetrically placed and most commonly with the feet pointing inward; therefore if one foot constantly lies on its outer side while the other does not, the attitude is very suggestive of congenital

dislocation, especially in the absence of any discomfort, and a radiogram should be taken at once to exclude this serious deformity, whose treatment cannot be started too young.

Asymmetry of the skin-folds on the inner sides of the thighs in very young, fat infants is very suggestive of dislocation and is another indication for radiography, which is the only certain means of making the diagnosis at the age when it is most valuable.

Raising of one patella above the other, when the infant is lying relaxed, is a better guide to shortening than measurements, which are hard to take in a fat wriggling infant. Naturally, these two signs are absent in double congenital dislocation.

Projection of one or both great trochanters (the "adult female outline") is a valuable sign to look for with the infant flat on its back. Unilateral projection and shortening of the distance to the pelvic crest proves some lesion between the trochanter and pelvis, which may be: dislocation of the head from the acetabulum, congenital, or inflammatory; bending of the neck, or slipping between head and neck; destruction of head, or neck, or both.

Lordosis, so that a hand may be slipped easily under the lumbar region, suggests fixed flexion of at least one hip.

6. *Measurements of the limbs* should be undertaken before the joints are disturbed, for they are difficult to obtain once the patient struggles. Most hip conditions are associated with wasting of the thigh muscles and much slighter, if any, wasting of the calf muscles. Considerable wasting of the latter, especially if associated with wasting of the thigh on the opposite side to the limp, is very suggestive of poliomyelitis. After paralysis has been excluded, the thigh and gluteal wasting associated with severe tuberculosis are much more marked than with any of the other hip conditions referred to, but early tuberculosis may show very little wasting. The thigh is most easily measured by running the tape a definite number of inches above the patella, so as to reach near the middle of the thigh, and then encircling the limb. Measurements below the middle are over tendons and may show little variation from the normal.

Great inequality of two limbs, which have a full range in all joints and no muscle weakness whatever, represents a form of local gigantism, of obscure origin, its only significance being the risk of severe scoliosis from unequal length of the limbs.

In measuring shortening, it is essential to have someone fix the pelvis, so that the line joining the two anterior superior spines is transverse to the body-axis, as slight tilting of the pelvis gives apparent shortening of a limb. After the true shortening has been ascertained it is useful to measure from the umbilicus to each internal malleolus, which gives the apparent shortening from flexion and adduction of the hip.

7. *The range of the hip-joints* to passive movements may now be tested. Flexion is the one which causes least pain and should be done first, beginning with the unaffected limb; when this knee is on the chest, it should be noted whether the affected thigh rises from the table, which indicates fixed flexion of that hip. As already remarked, the cause of such flexion may be actual bone change, or only flexor spasm in early joint disease, in early and late poliomyelitis, and in spastic paralysis. The angle should be carefully recorded for future reference, as it provides one of the most valuable guides to progress. When each hip has been flexed in turn, both should be brought up together and externally rotated (frog-position). If a hollow is seen in the groin, where the head of the femur should lie, it is very suggestive of dislocation.

Abduction of the hips is limited in most hip abnormalities; the shortening of the adductors may be developmental, as in congenital dislocation, spasm as in spastic paralysis, or protective in inflamed conditions of the joint. Adjacent inflammation, such as osteomyelitis and early extra-articular tuberculosis, does not show much adductor spasm, though a little flexor spasm may be associated with them. Inflamed glands and appendicitis and kidney inflammation are other causes of spasm of the hip flexors.

External rotation is reduced only in severe arthritis, whereas internal rotation is reduced early in tuberculosis and coxa plana, and its return is late and is one of the signs of complete recovery. Lesions of the neck of the femur, also dislocations, throw the limb into marked external rotation.

8. *Palpation of the hip* region should be reserved for the end of the examination, as it is likely to bring out pain in inflammatory conditions or to irritate a nervous child.

The great trochanter should first be felt and, if it is raised on one side above the other, as already noted, the lesion is between it and the pelvis. If it lies very far back, one has anteversion of the neck, which is common in congenital dislocation. While the fingers of one hand lie along the outer side of shaft and great trochanter, its thumb should be placed below the middle of Poupart's ligament and an attempt made to compress the femoral artery over the head. If the artery disappears into a soft bed of muscle, one knows the head is dislocated and then one must feel round with the thumb for it, while the second hand grasps the knee and gently rotates the limb. If this moves the head just below the anterior superior spine, one is dealing with an anterior dislocation. If the head is not there, carry the child's knee across its chest and feel on the outer face of ilium under the glutei, where the head, in cases of posterior dislocation, can be made to project under the skin.

Tenderness over a normally situated head is suggestive of arthritis, though it may occur in coxa plana. In severe cases pain, similar to that which occurs spontaneously, can be induced by jarring the great trochanter or the heel. It should be emphasised that the absence of these signs and of limitation of movement in all directions does not exclude early tuberculosis of the joint. As already pointed out the lesion is so apt to start extra-articularly, that if one waits for the signs of acute arthritis, one will be waiting for unnecessary bone destruction. Any case with muscle spasm and tenderness in the region of the hip should be treated with the same thoroughness as a frank tuberculosis until all signs and symptoms have disappeared. It is with tuberculous hip, as with other orthopædic conditions, that, though attempts at early diagnosis and treatment improve the average results, yet they by no means simplify the work of the surgeon, nor reduce the total burden on a hospital; for they involve the special treatment of many cases which might have recovered with casual treatment at home.

9. Finally, let us not despise the help of the laboratories, the Wassermann, the blood-sugar and sugar-tolerance tests, and the Mantoux test. Of it, as of older tuberculin tests, it seems true that a positive in an infant is strongly suggestive of active tuberculosis; while a negative in an adolescent almost excludes tuberculosis of the hip, where other signs are doubtful. The converse is not true.

EFFECT OF TREATMENT

Treatment is not included in the scope of this paper, but it must be remarked that sometimes the effect of adequate splinting in recumbency provides the final essential diagnostic test. Certainly, no abnormality of the hip region in a child should be regarded lightly, nor should it be watched except in a first-class hospital. In the past too many congenital hips were watched till they were irreducible, because "the limp was not getting worse"; too many tuberculous hips have developed gross deformity, because radiography with a poor apparatus or a poor technique "showed a "normal joint." Therefore it is safe to say that the diagnosis as well as the treatment of hip abnormalities in children demands first-class nursing, prolonged and constant observation, and first-class radiograms interpreted by an expert. Nobody who fails to command these facilities should undertake the serious responsibility of keeping a hip patient out of an orthopædic hospital.

INDUCED WATER RETENTION IN DIAGNOSIS OF IDIOPATHIC EPILEPSY

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After the exclusion of other causes of seizures, there remain cases in which the differential diagnosis between idiopathic epilepsy and hysteria can be made only when an actual fit has been witnessed by a trained observer. This may prove a difficulty when the fits are infrequent, even though the patient is detained in hospital for this purpose.

Jacobsen [1] has proposed a test to establish the diagnosis of epilepsy in the shortest possible time. It is founded on the theory that retention of water in the body will precipitate a fit in predisposed persons. To induce a positive water balance he administered large quantities of water by the mouth, accompanied by hypodermic injections of Pitressin. This is the pressor and antidiuretic principle of the posterior lobe of the pituitary body, as distinct from the oxytocic, and has the property of causing water retention in normal individuals. It also causes a slowing of the pulse, and stimulates the involuntary muscle of the alimentary and genito-urinary tracts. An increase in the body-weight of from 3 to 6 per cent. was taken as an indication that a positive water balance had been produced.

Jacobsen tested some 40 patients in this way, mainly children, and found that a fit occurred in all his epileptics once the water balance had been rendered positive. The only failures he had were with a few epileptics in whom a positive water balance could not be induced and in two patients who became nauseated, so that the test was discontinued. A series of normal controls tested in a similar manner had no fits; nor did the epileptics have them when they received pitressin alone or water alone.

PRESENT INVESTIGATION

We have repeated Jacobsen's procedure in 16 adult epileptics and 7 non-epileptic controls. Our object has been to confirm his results, or otherwise, and further to see whether any changes in the osmotic pressure of the blood accompany the water retention.

The epileptics tested were patients who had fits relatively seldom. They were kept in bed during the investigation; ordinary diet was taken, and in cases where Luminal had previously been administered it was continued. At the beginning of the test the bowels were opened by an enema, the patient passed urine, and the weight was taken. An injection of

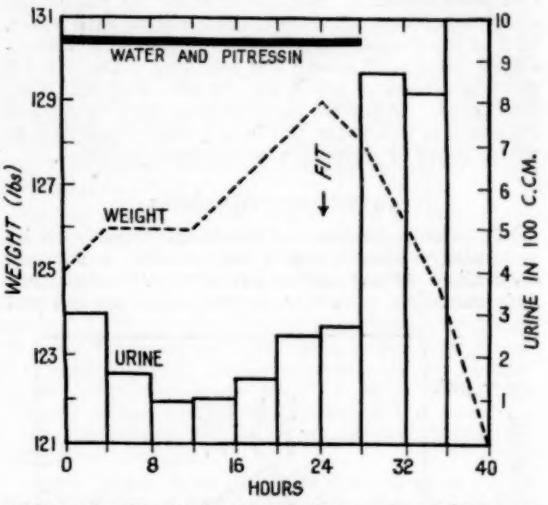

FIG. 1.—Results of a test showing increase in weight during administration of water and pitressin, followed by a fit.

0·25 c.cm. of pitressin was then given hypodermically, along with 300 c.cm. of water by the mouth. Subsequently water was given by the mouth in amounts of 300 c.cm. every two hours, and hypodermic injections of 0·5 c.cm. pitressin every four hours, until ten injections had been given. If a fit occurred before this, no further water or pitressin was administered. In the latter event ordinary diet was stopped and 5 oz. cream was given four-hourly until the fits ceased. The patient was weighed every four hours, and all the urine passed was measured.

Pallor followed the administration of pitressin in each case; it usually became noticeable about five minutes after injection and lasted up to two hours. It was accompanied by slowing of the pulse, but there was no marked alteration in the blood pressure. After two or three injections the action of the drug on the intestinal muscle was shown by slight looseness of the bowels. In all the cases the excretion of urine was diminished, and in one patient suffering from chronic nephritis considerable œdema of the ankles and face was produced. No œdema developed in any of the other cases, and it would appear that this condition constitutes a definite contra-indication to the carrying out of the test.

Table showing Results of Water Retention Test

Case.	Fits per year.	Pitressin and water.	Case.	Fits per year.	Pitressin and water.
1	41	+	9	25	+
2	18	+	10	26	+
3	8	+	11	3	+
4	17	+	12	3	+
5	5	+	13	3	Suspended.
6	16	+	14	1 in 2 yrs.	—
7	31	+	15	1 ,, 5 ,,	Suspended.
8	3	+	16	1 ,,10 ,,	—

+ = one or more fits. — = no fit.
Pitressin administered alone } = no fit.
Water ,, ,, }

Fig. 1 illustrates a typical case. There was a progressive increase in the body-weight during the administration of pitressin and water, with a definite drop when it was discontinued. The excretion of urine was affected conversely. A fit occurred after the weight had increased by 4 lb.

The accompanying Table shows that of the 16 epileptics tested, 12 had one or more fits during the administration of pitressin in combination with water. In 2 of the 4 negative cases, the test had to be discontinued because of hiccup and vomiting. The other 2 were both cases in which the fits were normally very infrequent. In none of the 7 controls was a fit induced by pitressin and water, nor in any of the epileptics to whom water or pitressin was administered alone.

CRYOSCOPIC ESTIMATIONS

The osmotic pressure of the blood depends on its molecular concentration, which can be accurately determined by the estimation of the freezing-point. Any retention of water in the blood stream will

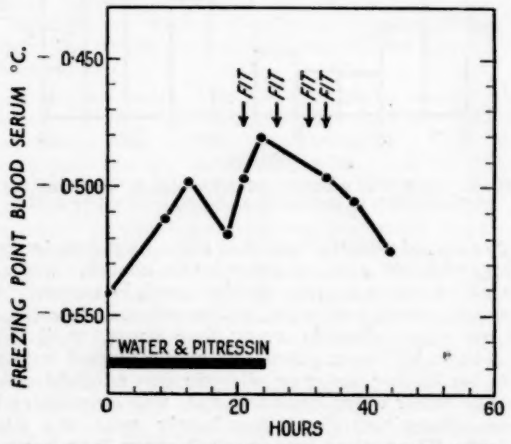

FIG. 2.—Freezing-point of blood-serum in relation to fits induced by administration of water and pitressin.

consequently be shown by an elevation of the freezing-point, provided that the retention is not compensated, from an osmotic standpoint, by simultaneous retention of urinary solids.

According to Margaria [2] the average freezing-point of the blood is −0·553° C., and under normal conditions remains remarkably constant. Water-drinking is normally followed by prompt diuresis and there is only a slight reduction of the freezing-point, the excess fluid being readily taken up in the tissue spaces of the muscles. But when water is taken during the anti-diuretic action of posterior pituitary lobe extract, Fremont-Smith [3] and others have shown that an appreciable dilution of the blood takes place, which is followed by a similar dilution of the cerebro-spinal fluid. We therefore thought it would be of interest to estimate the freezing-point of the blood-serum of our epileptics in order to determine the change in osmotic pressure at the time of production of the fit.

The apparatus used was the Beckmann-Heidenhain cryoscope, and the usual precautions were observed with regard to the temperature of the cooling bath, the amount of supercooling, and the uniformity of stirring, which was carried out by hand. Solidification was induced by the introduction of a small crystal of snow. Specimens of blood obtained by vein puncture were centrifuged, and the serum kept under oil until the estimations were made.

A preliminary investigation was carried out on 3 epileptics by estimating the freezing-point at the beginning of the test, and immediately after the production of a fit. In these cases there was an elevation amounting to 0·039, 0·054, and 0·060° C. Samples of blood were then taken at intervals throughout the test, and in 3 epileptics a freezing-point curve was obtained which showed a progressive lowering of the osmotic pressure of the blood more or less in proportion to the quantity of water ingested and the increase in body-weight. Fig. 2 illustrates the type of curve obtained, which shows that at the time the fits occurred there was a considerable disturbance of the osmotic regulation of the tissues. Experimental water intoxication in animals results in retching, vomiting, and violent convulsions, but it must be remembered that epileptic phenomena are more readily produced in animals than in man.

The epileptic appears to have an unstable nervous system which is hypersensitive to sudden changes in the osmotic pressure of its tissue fluids, and in the above test the fit may represent a reaction to the inflow of water into the cerebral tissues.

CONCLUSIONS

This test for idiopathic epilepsy is of definite value in arriving at a diagnosis in doubtful cases. No fit may be induced, however, when the patient has them very infrequently, and therefore a negative result is not absolutely conclusive. The water retention is accompanied by marked lowering of the osmotic pressure of the blood-serum, and it is probable that the resulting exudation of fluid into the nervous tissues is the precipitating factor in production of the seizures.

We wish to express our thanks to Dr. A. Pool, medical superintendent of the South Yorkshire Mental Hospital, for his helpful advice; also to Nurses Russell, Platts, Robinson, Wingfield, and Norton, for the care with which they carried out the technique.

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A NOTE ON THE BLOOD CHEMISTRY IN EPILEPSY

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THE relationship between epileptic seizures and the amount and distribution of water in the tissues and tissue spaces has been stressed during the past few years. The work of McQuarrie and his colleagues [1] and other workers appears to indicate that the beneficial effect of ketogenic diet is associated with removal of surplus fluid. On the other hand, Byrom [2] failed to detect any changes either in the net water balance or in the amounts lost by any of the excretory routes (urine, skin, &c.) during the twenty-four hours before a convulsion. He found, however, that the seizure was followed by a loss of body-weight resulting from the excretion of extracellular body fluid which in turn

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was succeeded by a retention of water and a corresponding rise of weight. Although he was unable to demonstrate any alteration in the gross amount of water of the body which might lead to an attack, Byrom [2] admits the possibility of an alteration in the normal distribution of water between cells and extracellular spaces.

In the hope of obtaining some information on this problem we investigated the water content of the blood obtained from epileptic patients during a fit and compared the findings with those obtained in the quiescent stage. To do this the percentage volume of red cells, serum protein, and whole blood chloride were determined. Normally the ratio of corpuscles to plasma is about 40 to 60. Any change in the degree of hydration of the blood will be reflected by an alteration in this ratio. Changes in the concentration of plasma protein and blood chloride will also indicate abnormality in the water content of the blood. At the same time it was found possible to obtain values for the serum calcium, phosphorus, and phosphatase.

The researches of others on serum calcium are too numerous to quote; a summary of the more important results is given in the monograph by Lennox and Cobb,[3] who conclude that the calcium content of the body fluids in epileptics is normal. Recently a paper has appeared by Spitzer,[4] who states that more than half the number of cases of true epilepsy show deformities of teeth and suggests that there may be interference with thyroid and parathyroid action. It was therefore thought worth while to determine the value of serum calcium and phosphorus and phosphatase, the latter substance being a ferment the amount of which is affected by parathyroid activity, and which itself plays an important part in calcium and phosphorus metabolism.

Table showing Blood Analysis in Epileptics

—		No. of cases.	Range.	Mean.	Standard error.	Standard error of diff. of means.
Serum calcium (Mg. %)	F.	31	8·6 –11·7	10·28	0·55	0·16
	Q.	32	8·4 –11·4	9·94	0·22	
Serum phosphorus (Mg. %)	F.	30	2·2 – 4·5	2·996	0·41	0·14
	Q.	30	1·9 – 4·0	2·88	0·36	
Plasma phosphatase (units %)	F.	30	2·3 – 9·0	4·56	1·17	0·40
	Q.	30	2·5 – 8·5	5·16	0·94	
Red blood-cell (per cent. vol.)	F.	24	24·2 –53·3	40·36	4·56	1·68
	Q.	24	31·8 –47·3	38·75	3·20	
Serum protein (g. %)	F.	24	6·74– 9·40	8·28	0·48	0·21
	Q.	24	6·90– 9·46	8·098	0·51	
Blood chlorine (c.cm. N/10 %)	F.	17	64·30–80·10	74·75	2·69	1·85
	Q.	17	64·20–92·80	76·66	4·39	

F. = fit; Q. = quiescent.

The patients, 32 in number, were all adults and true epileptics, who had been resident in Gartloch Hospital for at least six months. Blood was withdrawn in a quiescent stage of at least three days' duration, and only those samples were accepted which proved to have been taken at least forty-eight hours before a convulsion. In the same patients blood was also withdrawn during an attack. The results are detailed in the accompanying Table.

The percentage volume of red cells was determined by centrifugalising oxalated blood (1 drop of 15 per cent. potassium oxalate solution to 5 c.cm. of blood) for half an hour in a graduated tube. For the quiescent stage the mean value was found to be 38·75 and during a seizure 40·36. These were not found to be significantly different. One finding, however, is of interest—viz., the greater range of red cell volume observed during the fits. Lennox and Cobb[3] report normal values for hæmatocrit readings in 100 epileptic patients, but they do not state whether or not the blood was taken during a convulsion. Although their findings were higher than those recorded here, it is probable that difference in method and the presence of anæmia in some of the present series may account for this variation. Clemmesen[5] examined the blood in normal subjects and epileptic patients while on normal diet, and during a period of inanition; he found no change in the percentage volume of blood corpuscles in either group.

In our series neither serum protein nor blood chloride varied significantly as a result of a fit. The mean value obtained for serum protein (8·10 g. per cent.) (estimated refractometrically) tallied with that recorded (8·3 g. per cent.) by Wuth[6] using the same method. These results indicate that if any interchange of water between cells and tissue spaces does occur, it is not reflected in the blood stream. It is possible, however, that the greater range of values obtained for red cell percentage volume during fits is due to a greater instability of water metabolism during the epileptic convulsion.

It will be seen from the Table that the mean values for serum phosphorus do not differ from those of a normal series. An increase during the fit was shown in 19 cases and a decrease in 9. The mean values for phosphatase determined by the method of Jenner and Kay[7] are lower than normal (6·6). Of 30 cases observed during the fit 13 had values below 4·0 which we consider to be the lower limit of the normal range and only 3 above 6·6. In 19 cases there was a decrease during the fit and in 11 an increase. When, however, the mean values of both phosphorus and phosphatase are considered, it is obvious that neither shows a significant difference as a result of the convulsion.

As regards serum calcium the mean values are within normal limits, but the quiescent figure is 0·34 lower than that obtained during the fit. A statistical consideration of these figures shows that it is just possible that the observed difference is significant, but the probability of this being so is not great enough to justify more than a passing mention. Of the individual cases 20 out of the 32 examined showed an increased value for serum calcium during the seizure. These results suggest that there may be some slight disturbance in calcium and phosphorus metabolism but of a secondary nature.

CONCLUSIONS

Investigation of the blood chemistry of epileptic patients at a quiescent period and during a convulsion does not reveal any significant difference in the composition of the blood, except possibly a greater variation in percentage volume of red cells and a slight rise in serum calcium during the fit. We do not consider that the changes are wide enough or sufficiently constant to lend support to the view that the onset of an epileptic seizure is associated with alteration in water metabolism.

We desire to express our thanks to Dr. A. M. Dryden, medical superintendent of Gartloch Hospital, Gartcosh, for the facilities which he afforded us, and to Prof. G. B. Fleming, Dr. S. Graham, and Dr. N. Morris for their helpful advice.

(*References at foot of next page*)

ATYPICAL MUSCLE STRAIN

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THE following are put forward as the arguments on which the essay is founded:—

Argument

1. Pain which may reach great severity often arises from atypical muscle strain.

2. The sites of these strains are often overlooked, because the usual signs of muscle strain are frequently absent, and often the pain is ascribed to coexistent conditions.

3. The cause of atypical muscle strain is unsatisfactory repair of soft structures due in general terms to ill-health, deficient circulation locally, to chronic local fatigue of muscle, and incoördination.

4. These atypical strains can be located with certainty by simple electrical tests.

5. Satisfactory results from treatment demand a reasonably good state of health, so that the appropriate local remedies may take effect. Bad muscular habits which induce local muscular fatigue must be adjusted.

When flaccid, a muscle should be sufficiently extensible not to suffer strain within the normal range of joint movement, so that it is reasonable to suppose that muscle-fibres which happen to be inactive do not suffer strain. But, if a sudden force is applied while a large number of muscle-fibres are contracting, strain is likely to occur. Again, if a sudden force, such as would arise through loss of balance, is applied when a muscle is under a light load, more fibres come into action by reason of the "stretch-reflex" mechanism; if the force does not yield to this reinforced action by the muscle, strain may take place. In both these circumstances a number of neighbouring fibres are in action and can become damaged, as they are subjected to considerable force. If damage results, a condition of acute strain is found at a point which is recognisable by tenderness over the site of injury, by swelling and by increased pain on voluntary movement. This constitutes the classical muscle strain which is rarely overlooked. Milder forms of the acute condition are seen. They are as a rule easily recognised, although one or more of the signs of acute muscle strain happen to be absent. The inflammation that follows an acute muscle strain should lead to a satisfactory repair, and the scar tissue which is laid down should not impede the subsequent function of the muscle. This is not always so.

HYPERSENSITIVITY TO THE FARADIC CURRENT

In certain cases it has been noticed that a few weeks after a strain portions of a muscle are distinctly hypersensitive to the faradic current, so that the patient experiences a sensation of needle pricks, of a bruise, or of a sharp boring-in pressure, whilst on the surrounding undamaged muscle the identical current gives the usual feeling of quiver. Hypersensitive areas located in this way are frequently found at the same time as the patient is experiencing either referred or diffuse local pain; in fact, sometimes stimulation of the hypersensitive area gives rise to this pain. After suitable local treatment of the areas in question both the hypersensitivity and the pain disappear. There thus appears to be a definite relationship between atypical muscle strains and pain which is either referred to a distant part or is local, although vague and diffuse. To explain this hypersensitivity to the faradic current is not easy, but possibly scar tissue, formed within the muscle after the accident, is contracting down on nerve filaments in contact with it and rendering them irritable. The symptoms may be conveniently regarded as being the result of matting together of fibres of muscles or fascia and sensory nerve twigs, possibly due to the organisation of an inflammatory exudate.

In many cases there is no history of a strain, but as a result of a hypertonic condition of the muscles in question one finds a local chronic fatigue, as will be described later.

Characteristics of Atypical Muscle Strain

Of the characteristics from a clinical point of view the first four are of special importance.

1. Lack of tenderness to pressure.

2. Delay before the patient experiences pain due to the atypical strain. This delay is sometimes a matter of weeks.

3. Absence of pain on passive movement.

4. Absence of objective physical signs, such as swelling or redness.

5. Diffuseness.

When hypersensitivity to the faradic current is found in muscles, this is frequently diffuse over quite a large area. It is often found along lines of mechanical stress in a series of muscles that are used in some occupation or habit, rather than within definite anatomical boundaries. It is not easy to explain why diffuse damage should occur in the belly of a muscle without localised damage at any one point producing classical signs of acute strain. When light work is being performed, muscle-fibres come into play in rotation in a manner similar to the process found in the capillaries. In a muscle with lowered vitality through chronic fatigue or ill-health, it would seem that, when the local load is suddenly increased, instead of a reinforcement by further muscle-fibres occurring through the "stretch-reflex" mechanism, the individual fibres which happen to be contracting become damaged.

6. Another distinction between the acute and this atypical form of muscle strain is the *absence of pain on active movement*, which is often a characteristic of the latter. This absence of pain does not preclude the existence of strain in a muscle because, when a muscle contracts during a voluntary movement, only a portion of its fibres are brought into use. It therefore seems quite feasible that the absence of this sign of strain is noted, because the strained portion of the muscle was not brought into play during the voluntary test.

We must mention that stretching a muscle affected in the manner under discussion may produce referred or diffuse local pain. Confirmation of this must, as a rule, rest on the elimination of the pain following treatment of the hypersensitive portion of the muscle, as it would of course be hard to show absence of pain from neighbouring

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structures involved in the movement. Hypersensitive areas in the abdominal wall sometimes exemplify this. When the strained muscular wall is stretched as a result of flatulence, pain may be severe and may radiate extensively, often down to the scrotum. After treatment, flatulence causes similar stretching of the muscular wall, but without the pain previously experienced.

7. In some cases after these strains have been cleared up an increased range of joint movement has been reported by the patient, and is noticeable to an observer. This seems to indicate that these atypical strains can be responsible for local muscle spasm in their vicinity. This spasm produces local chronic fatigue, which predisposes to further atypical muscle strain. It is thus a feature of these strains that the area affected tends to increase in size with the passage of time.

8. Absence of tenderness to touch and other recognised signs of muscle strain may lead to the pain being ascribed to another factor, especially if some disability such as gross osteo-arthritis of the hip-joint is coexistent. We have seen this occur, where severe pain felt down the inside of the leg to the knee was subsequently shown to be due to atypical strain located in the gluteus medius muscle and in fascia near the great trochanter; similarly, pain felt in the groin and radiating down the inner side of the leg was due to atypical strain in the pectineus and sartorius muscles. It thus seems reasonable to add a final characteristic, namely, elusiveness, realising that it is merely an indication for applying an electrical test rather than an adequate proof of strain. At the examination the presence of these atypical strains arouses an impression that something beyond the evident bodily defects is needed to account fully for the degree and distribution of the pain, discomfort, or weakness of which the patient complains, or which he appears to have. This feature of elusiveness possessed by atypical strains is sometimes responsible for patients being erroneously described as neurotic; the electrical tests, however, throw valuable light on this difficult question.

Causes of Atypical Muscle Strain

Whilst admitting that there are other points of view, it does not seem that any of the cases we have studied during the last seven years require any more complex explanation than is given below. We are grouping the factors affecting the situation under four headings for the sake of clearness, although in practice they usually interact, so that it is hard to settle their relative importance or, sometimes, to pick them out individually. This interaction often presents a difficulty when choosing a line of treatment, and is thus important clinically.

1. *Trauma during ill-health.*—We have already alluded to causes and mentioned that possibly organisation of inflammatory exudate within a muscle contracts down on sensory nerve twigs and renders them irritable. Whatever may be the exact nature of the cause, we can describe it in general terms as an unsatisfactory repair of the soft structures. One group of factors which predispose to a failure in repair comes under the heading of a poor state of health.

2. *Stasis and poor blood-supply.*—Unsatisfactory repair of the soft structures tends to occur in the presence of poor blood-supply and stasis. Thus, exposure to cold, general fatigue, or reduced activity (either due to pain or during immobility owing to the treatment of a fracture) may lead to an acute muscle strain becoming chronic by assuming this atypical condition. The result of a combination of cold, deficient blood-supply, lowered activity of intrinsic muscles, and local engorgement of tissues is sometimes seen in the feet of patients with a poor circulation. Under these conditions minor strains arise and, as they fail to clear up, the patient experiences pain due to irritation of the sensory nerve twigs involved.

3. *Weakness and incoördination.*—Atypical strains are also found in weak and incoördinate muscles on which a heavy load is suddenly thrown. For example, these diffuse strains are seen in the gluteus maximus muscles in the patients who, through bad habit, do not normally use these muscles, but rely too much on the hamstrings. Their buttock muscles thus become anæmic and infiltrated with fatty tissue. When an unusual exertion such as stepping off a bus is made the buttock muscles suffer and, being normally little used, repair does not proceed in a satisfactory manner. Hence a state of atypical strain supervenes.

Athletes who train too rapidly may subsequently suffer from atypical muscle strains.

Strain due to incoördinate action also occurs in muscles which suffer from local chronic fatigue. These fatigued muscles are prone to injury with inadequate cause; an awkward movement, as when tying a bootlace or lifting something, is enough to produce strain. Possibly local chronic fatigue upsets normal coördination and synergic action of muscles. When patients with these troubles are watched performing purposive movements with the muscles in question exposed to view or to touch, a staccato action in place of the usual rhythm is seen. As the precipitating cause is so trifling, and as the latent period before pain is felt is sometimes a matter of weeks, the significance of chronic local fatigue is sometimes missed; the trifling nature of the accident suffices to produce an atypical strain, but does not lead to the classical symptoms of an acute strain.

4. *Local chronic fatigue in hypertonic muscles* predisposes to atypical strain in muscle in the following manner. Normal muscle tone implies a state of slight constant tension which is caused by individual muscle fibres contracting in rotation. In order that the integrity of the muscle may be safeguarded, it is essential that the individual fibres be given adequate periods of rest in the relaxed state, and this is provided for by the continuous interchange of active fibres. Increased tone is obtained by a larger proportion of fibres becoming active at one time, and under these circumstances the resting phase for individual fibres becomes reduced. Hence, if this increased tone is prolonged, fatigue products tend to accumulate. This accumulation of fatigue products during sustained static contraction is accentuated by the relatively small volume of blood that traverses the muscle during this form of activity. Possibly this volune exceeds the low blood-supply in a resting unfatigued muscle, but it is totally inadequate for the demands of the muscle, and cannot be compared with the rich supply induced by exercise which involves alternate contraction and relaxation.

If, therefore, muscles are kept for long periods in a hypertonic state, chronic fatigue sets in, and it is not surprising that under these conditions we should often find unsatisfactory repair of the soft structures, which leads to atypical muscle strain. This is observed clinically even in muscles which show an unusual amount of development. It seems also that the chronic fatigue gives rise to mild persistent damage of soft structures, which will suffice to begin the trouble without the occurrence of any recognisable injury. In these cases where pain has supervened, no permanent relief is obtainable until the hypertonic state has been

dispensed with. Restoration of the normal muscle balance is thus an essential part of treatment.

Detection by Electrical Tests

Hypersensitive areas associated with atypical muscle strain can be conveniently located by two methods. The first is by means of minimal faradism using the current drawn from the Smart-Bristow coil. This is convenient, because this coil is in constant use and is well understood. As already described, the patient notices differences of sensation when the current is passed through normal muscle and muscle suffering from atypical strain. The peculiar sensation of pain, when the electrode is applied to the area of strain, is never confused by the patient with the normal sensation of faradism. This minimal faradic test uses a low voltage current, and the amount of the current which passes to the muscle under test depends on the electrical resistance of the overlying tissues. If the horny layer is thick, if it is patchy—as when local exposures of ultra-violet rays have been given—if the patient is very fat, or if the muscle in question lies very deep, the results of the test may be hard to evaluate.

The second method is to use a current which reaches the damaged muscle without being affected by variations of resistance of the superficial tissues. This is achieved by fully rectifying an alternating current without any smoothing, and controlling it by regulation of the filament current of the rectifying valve. This current being of an unidirectional pulsating nature has an added advantage of being easily measured by means of an ordinary milliammeter. It may conveniently be called "rectified A.C."

When using this rectified current for testing, it is essential to keep constant the area of contact between the electrode and the patient's skin. Thus, considerable care is needed, when testing over prominent bony points, such as the epicondyle of humerus. If this area of contact is kept constant, there is no possible risk of using an excessive current flow or density, as with a suitable arrangement of resistances control of the patient's current is most satisfactory. The method has advantages over the faradic current.

Treatment

A poor state of health was given as a cause for failure in the initial repair of soft structures and the consequent production of atypical muscle strains. It is of equal importance when we are aiming at bringing about an adequate repair by means of local remedies. Improvement of general health is beyond the scope of this article, so we shall not deal with this aspect of the subject which, with certain patients, is of the utmost importance. It must be mentioned that many patients who acquired atypical muscle strains when in a poor state of health are found to be perfectly fit when they come for treatment; this shows that a return to normal health alone may be insufficient to improve the muscular condition.

LOCAL REMEDIES

A satisfactory choice of local remedies often gives results in a single treatment, but to achieve this localisation of the site of atypical strain is essential, so that the beneficial effect of the treatment is not wasted on other areas. It is of relatively little value to treat an area of referred pain as compared with treating the site of the atypical strain, hence the great importance of the electrical tests in all but the simplest cases.

Two remedies for atypical strain which are generally efficacious are local doses of ultra-violet rays and histamine ionisation. The effects of these are somewhat similar because local doses of ultra-violet cause a liberation of small quantities of vasodilatory substances over a long period, producing the characteristic "triple response."

Broadly speaking, the former of these two is able to cover at one sitting a larger area than the latter, and give a longer effect, but may be correspondingly less potent. Where the skin is thick, as on the sole of the foot, or where it is deeply pigmented from exposure to the sun or to ultra-violet rays, histamine ionisation is more useful. On the other hand, histamine ionisation must be used with great care, and must never be given when there is gross heart disease or low blood pressure; occasionally the effects on respiration and on peristalsis are contraindications, with allergic patients. Often the choice between these two depends on expediency; it is unwise to make a local pigmentation by ultra-violet on the shoulder of a lady who wears evening dress, and it is equally undesirable to give a histamine headache to a business man who is about to put through an important deal.

Massage, radiant heat, infra-red rays or diathermy (either short or long wave) often do not succeed, and may even exacerbate the pain. They may, however, prove useful adjuncts to local doses of ultra-violet or to histamine ionisation.

RESTORATION OF MUSCLE BALANCE AND NORMAL RELAXATION

This must be dealt with briefly, so as to keep in line with the foregoing. The adjustment of faulty muscular habits which produce chronic fatigue in hypertonic muscles is, as a rule, simple, even with the elderly and decrepit, but not so by the usual method of repeating the desired movement or posture as an exercise, because this deals with one side of the problem only.

These bad habits occur unnoticed by the patient, as they belong to the background of his daily activities being almost part of himself. Thus, sensations connected with them must be pointed out to him, and made to stand out like highlights against this background, whenever they recur; for example, pressure of the collar against the neck can be used to remind the patient of a poking forward of his chin. The bad habits are often linked up with emotions such as the fear of falling or of pain on movement, sometimes being the patient's response to instability of his feet or ankles. Unless newly forming habits are practised under conditions which do not arouse these unconscious fears, much time will be wasted.

Purposive movements, such as rising from a chair, must be encouraged in a painless manner. Conditions which encourage the good habit must be studied; when walking upstairs, the patient will probably avoid a retracted neck position which may have been associated with a spasm of the lumbar muscles, if he looks at the step on which he is going to place his foot. It is essential to train sensation, so that the patient can check the results of his efforts; should he experience any feeling of effort in the fatigued muscles, when doing a movement, it cannot have been done correctly. The knowledge of success each time he tries and the relief to his previously hypertonic muscles form a talisman against relapse for the patient who knows how to help himself with understanding.

THE ELECTRICAL TESTS

A test for atypical muscle strain should be applied after each series of two or three treatments, when dealing with difficult cases, as this regulates the programme of treatment outlined before treatment began. This is important when coexistent conditions are present and may themselves require attention, or when several areas of atypical strain appear to refer pain to the same distal area. It is also most useful when an atypical strain giving a diffuse local pain exists in a portion of the body to which pain is referred by other distant strains. As an example of this, one may mention how some patients, on the one hand,

feel pain referred from the lower back or the buttock muscles to the foot and below the knee, and, on the other hand, have atypical muscle strain near the external malleolus, which gives a diffuse local pain in the same area. The tests, of course, locate strain in the fascia as well as in a muscle belly.

Conclusion

We wish to emphasise that atypical strains are liable to be overlooked; that the pain they produce is likely to be ascribed to other causes; and that the electrical tests which elicit these strains are therefore clinically important.

We wish to express our gratitude to Mr. A. T. Fripp for his valuable suggestions as regards the production of this article.

THE TONSIL AND ADENOID OPERATION

REASONS FOR REVERSAL OF THE USUAL ORDER OF REMOVAL OF THE TONSILS BEFORE THE ADENOIDS

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The operation for removal of the tonsils and adenoids in children is such a common one and is in practice performed by such a variety of surgeons that it is surprising that there is almost complete unanimity in dealing with the tonsils prior to the adenoids. A few text-books have mentioned the fact that the usual order of the operation might be reversed, but it is probable that the general belief in the safety of a short and light anæsthesia has made it essential that the nasopharyngeal part of the operation should be done last; because, whereas every step of the tonsil removal is taken under full visual control, the nasopharynx, on the other hand, can only be examined digitally, and during the adenoidectomy there is next to no risk of serious instrumental injury to some vital tissue—an accident which is always at the back of the surgeon's mind as a possible if highly improbable complication during the removal of the tonsils.

The advent of the use of the Davis gag, the elimination of the use of the blunt or sharp guillotine, and the safety of a longer and deeper anæsthesia, has made possible a much more deliberate technique, and therefore other methods may be worthy of consideration.

When the patient is in the extended head position and with the pharyngeal reflex abolished by the anæsthetic, it is possible by using a Davis gag (or any form of dental gag with displacement of the tongue) to obtain a complete view of the field of operation for the removal of the tonsils, and with a little practice the operation can be carried out quickly and with only slight hæmorrhage. It is therefore very unusual to see a child who has been operated on by this method with a so-called "tonsil remnant" showing later. Although the actual tonsillectomy has been made so much easier by the improved view of the operation field, the only additional help with regard to the adenoidectomy is that the removal may be more deliberate owing to the continued administration of the anæsthetic.

It is in my experience fairly common to meet with a child in whom there has been a partial and unsatisfactory removal of the adenoids, but uncommon to see one in whom there has been an incomplete tonsil removal. This is because, as has been stated above, the tonsillectomy is no longer a "trick" operation, but in performing adenoidectomy the surgeon is still compelled to work in a cavity which it is impossible to inspect and by inspection make sure that his operation has been completed.

For several years now I have invariably practised the removal of the adenoids as the first stage in the tonsil and adenoid operation. The exact method of removal of the adenoids is not here under consideration, but it is not so easily carried out with the Davis gag as with a simple incisor gag, owing to the fact that the tongue blade of the Davis gag puts tension on the faucial pillars and this makes instrumentation of the nasopharynx more difficult.

The adenoid operation is started under exactly the same depth of anæsthesia as is required for the tonsillectomy and with the head in the same extended position. As soon as the removal of the adenoids has been completed and the surgeon has satisfied himself by a careful digital examination of the nasopharynx that the adenoid tissue has been completely removed, the nasopharynx is firmly packed with a gauze plug. Hæmorrhage from the nasopharynx is thus at once completely checked. The tonsil operation is then performed in the usual way, and if an ordinary form of dental gag has been used for the operation up to this point it can be safely removed and a Davis gag substituted.

It may here be objected that the fact that the nasopharynx is completely filled with a plug will add to the difficulty of the tonsil operation, since the blood cannot escape from bleeding tonsillar vessels into the nasopharyngeal cavity and will tend to fill the mouth more rapidly. This is to a certain extent true, but it should be possible to carry out the tonsil operation with so little hæmorrhage that this can be easily dealt with as the blood collects, without in any way endangering the airway; and if it is thought necessary a suction apparatus can be kept ready to remove any excess of blood. If more than one nasopharyngeal plug is used it is absolutely essential that the number of plugs or sponges should be counted, so that it is made certain that they are removed at the end of the tonsillectomy operation; and it is probably safer only to use plugs that have a thread or thin tape attached to them.

ADVANTAGES

The following advantages are obtained by operating on the adenoids as the first stage:—

1. The adenoid operation is carried out with the faucial pillars still intact and supported by the tonsils and there is therefore no danger of tearing or damaging them when passing an instrument or an examining finger into the nasopharynx. This is an accident which may occur if the tonsils have been removed first, particularly in small children and when the Davis gag is used, and although it may be considered trivial it will result in unnecessary scarring.

I consider that it is absolutely essential to digitally examine and as far as possible inspect the nasopharynx immediately after the adenoidectomy.

2. As soon as the adenoid operation is completed the nasopharyngeal plug arrests the hæmorrhage and there is less actual loss of blood than if the bleeding is allowed to stop by the ordinary process of clotting.

3. It is a great advantage that at the end of the adenoid and tonsil operation, after the removal of the nasopharyngeal plug, the child can be at once removed to bed with less risk of a blood clot forming in the deep pharynx; and there will be less soiling of bed linen due to blood trickling away from the nose.

4. I certainly think that the frequently applied method of removing the adenoids while the patient is "coming round" from the anæsthetic cannot be too strongly deprecated. Under these conditions the palate muscles contract and the adenoid operation is

rendered much more difficult and at the same time, owing to the liability of the patient to stop breathing by contraction of the laryngeal muscles followed by a sudden violent inspiration, there is more risk of blood and infected secretion being sucked into the lower air-passages.

Clinical and Laboratory Notes

AN UNUSUAL CASE OF MECKEL'S DIVERTICULUM

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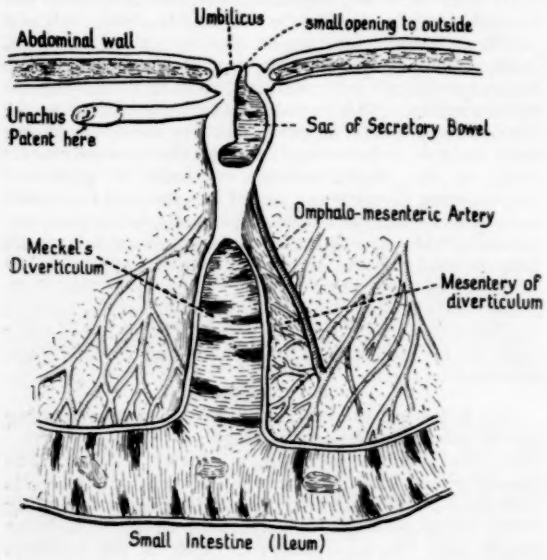
MECKEL'S diverticulum, according to Keith, is the persistence of the intra-abdominal part of the vitello-intestinal duct; and although it normally disappears, vestiges may remain and give rise to symptoms varying from slight discomfort to intestinal obstruction. The following case is an unusually complete example of the various characteristics of the condition.

A. B., aged 10 years, came to my out-patient department complaining of a dermatitic condition of the skin round



the umbilicus. His statement was that this started three weeks ago, and was due to a "kick in the stomach" when swimming in the baths with some other boys. His mother stated that his cord was very thick at birth and difficult to heal, requiring cauterisation. For the first six years of his life he had complained at times of vague abdominal pains in the region of his umbilicus, but he never had any nausea or vomiting, and there was no difficulty in feeding him in infancy. From six to ten years of age he had had no trouble whatever until this eczematous condition of the skin started round the umbilicus.

On examination the umbilicus was found to be retracted, and a dirty brownish-yellow discharge exuded from it, causing the eczematous condition of the skin. No symptoms of interference with the bowels were present, and nothing could be felt on palpation. I put on a broad Elastoplast bandage over the umbilicus and told the boy to report in two days. When I took the elastoplast off about half an ounce of dirty yellowish fluid came from the umbilicus, homogeneous in character, with no flakes or granules in it. I repeated this, and a larger quantity came out the second time; accordingly I decided to admit him to the ward and explore, expecting to find a patent urachus. On August 21st, 1934, I explored by an elliptical incision so as to remove the umbilicus and whatever was attached to it, and found the following condition. Running from the ileum up to the umbilicus was a well-marked Meckel's diverticulum. (See Figure.) This arose almost close to the mesenteric border of the ileum, and its lumen was the same as that of the ileum. It was 4¾ inches long and attached to the umbilicus. For the first 3 inches from the ileum the lumen was patent; then about ¼ inch fibrous tissue supervened; this, again, opened out into a cavity 1¼ inches in diameter, which communicated by a small opening into the umbilicus. On splitting this cystic end open I found it lined with mucous membrane; to all outward appearance it looked like a piece of duodenum or jejunum, with rugæ secreting fluid which was being discharged through the small sinus into the umbilicus. This diverticulum had a mesentery of its own, attached to the mesentery of the bowel, and along the free edge of this mesentery ran an omphalo-mesenteric artery the size of a fairly large quill. This was attached to the umbilicus at one end, and ran out into the mesentery of the ileum. Also attached to the umbilicus and running down the right side was a large urachus, patent up to within 2 inches of the umbilicus.

The usual operation was done with a Kocher's clamp, and the diverticulum was treated as an appendix and sunk by a continuous Lembert suture. The abdomen was closed and the boy made an uninterrupted recovery.

The chief points of note in this case are: (1) there were no signs or symptoms of obstruction or interference with the bowel at any time; (2) the part of the bowel next the umbilicus, and shut off from the intestinal part of the diverticulum, was actively secreting fluid which caused the irritative dermatitis; (3) this seemed to have been stirred to life by the kick in the abdomen; (4) the Meckel's diverticulum, with its mesentery complete, and the omphalo-mesenteric artery and the urachus were all conspicuous and present together.

FURTHER NOTES ON THE LABORATORY USE OF SCREW-CAPPED BOTTLES

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DETAILS of the use of screw-capped bottles in the preparation and storage of culture media, for blood culture bottles, and as a substitute for test-tubes have previously been described by one of us.[1 2] These methods have proved very satisfactory; the following further uses will be of assistance, particularly for routine use in pathological laboratories.

"BIOCHEMICAL BOTTLES"

For the various routine biochemical methods, several kinds of anticoagulants or preservatives are mixed with the blood according to the examination required—e.g., potassium oxalate, sodium fluoride, and sodium citrate. In order to ensure that the correct anticoagulant is used, and in the proper amount, small screw-capped bottles, with painted tops and covered with a Viskap, are used. The bottles employed are the 1 oz. screw-capped vials H. 53 previously described [2] and fitted with a perforated cap and rubber washer, as used for the blood culture bottles.[1] The same aluminium cap also fits the 4 oz. and 6 oz. medical flats. The blood is added to the bottle by puncturing the rubber washer like a vaccine bottle.

Method.—The caps discarded from the bottles used for media are utilised. They are placed in weak lysol which not only sterilises them from any culture organisms, but softens the white paint on them so that it is easily rubbed off. The liners are removed and the caps washed and dried. A hole ¼ in. in diameter is punched out of the cap and a red rubber washer 2 mm. thick is fitted. To the sterile H. 53 bottles the correct amount of anticoagulant is added, a perforated cap is screwed on, and the top painted with cellulose paint according to the following scheme, which has been standardised :—

Anticoagulant and amount.	Colour of top.	Test.
Sod. fluoride 10 parts } 0·1 g. Thymol .. 1 part }	Red.	Blood-sugar.
Pot. oxalate 0·25 c.cm. (4 drops) 20 per cent. (evaporated)	Blue.	Blood-urea.
Sod. citrate, 20 per cent., 4 drops.	Purple.	,,
Mixed fluoride and oxalate, 0·5 c.cm.* (evaporated).	Yellow.	Blood-sugar. Blood-urea.† Non-protein nitrogen.
None—plain empty bottle ..	White.	Where ordinary serum required—e.g., Widal, Wassermann, blood calcium, &c.
Glass beads, 3 mm. diameter	White.	For defibrinated blood.

* Pot. oxalate .. .. .. 3 g.
Sod. fluoride .. .. .. 4 g.
Distilled water .. .. 100 c.cm.
† Fluoride prevents the use of the urease method.

With the potassium oxalate and mixed fluoride-oxalate the solution is placed in the bottle, which is rotated so that the fluid moistens most of the interior, and then placed in the hot-air oven (coolest shelf) to dry. When the bottles are removed and cooled, the cap is screwed on.

With the plain bottle and bottle with beads, new caps are used because they are already painted white when received. When the cellulose paint is dry (30 minutes) a transparent viskap (No. 2, cut 1½ in.) is placed over the cap and allowed to dry. In doing so, it shrinks and moulds itself to the shape of the top of the bottle.

Use.—A red, blue or purple-capped bottle is used according to the test required. The viskap should not be removed. The top of the viskap is wiped with a little methylated spirit which is allowed to dry. Blood is withdrawn from a vein into a syringe in the usual manner. The needle is then plunged through the viskap and washer, and the blood squirted into the bottle. The needle is withdrawn, and the bottle gently rotated until the anticoagulant is dissolved. The top is wiped with a little spirit before being sent to the laboratory.

The advantages of this method are : the bottles can always be kept in readiness ; being sealed there is nothing to deteriorate ; neither can fluid (e.g., citrate solution) evaporate ; the bottles are easily identified by the nursing staff ; the intact viskap shows the pathologist that the bottles have not been opened, and that the contained anticoagulant has not been emptied out or spilt. From the colour of the cap the pathologist can tell at once if the correct bottle has been used for the test required ; thus, if he received a blue cap (oxalate) and the request form asks for blood calcium he will not waste his time proceeding with the test. The bottle with beads is useful for defibrinated blood in the malaria treatment of general paralysis.

Many thousands of these bottles have been distributed throughout the Council's laboratories and have proved extremely useful.

FOR ANAEROBIC CULTURES

The bottles (substitutes for test-tubes) containing culture media are fitted with perforated caps and rubber washers as above when the medium is sterilised, and a supply of such bottles should always be available. Being "canned" the contents will not evaporate or deteriorate, but will keep indefinitely. Alternatively a supply of sterile perforated caps may be kept and used as required.

After the medium has been inoculated the perforated cap is screwed on tightly. A hypodermic needle (No. 22 SWG) is fitted to a piece of pressure tubing, the other end of which is connected to a Geryck pump. The needle is plunged through the rubber washer and the pump started. After a few strokes the air will be entirely exhausted and the needle is withdrawn. The puncture in the rubber is self-sealing, and the vacuum will be maintained for many months. Tests taken when the tube was opened under water three months after exhaustion showed that an almost perfect vacuum had been maintained, there being only a tiny bubble of gas in the bottle. If it is desired to introduce any gas such as CO_2, or a mixture of gas (e.g., CO_2 and air) for *Brucella abortus* cultures, it is only necessary to connect a hypodermic needle to the supply, pierce the rubber washer, and allow the gas to enter. Usually we do not admit any gas after exhaustion, and we have found this method extremely simple and reliable. It is useful for the recognition of *B. welchii* in milk cultures. Any gas evolved is "absorbed" by the vacuum, and no bursting of containers or spilling of liquid will occur. The cultures in the small bottles on solid culture media can frequently be used for isolating anaerobes without recourse to Petri dishes. Where a number of bottles are being exhausted it is advisable to keep the Geryck pump working all the time and have a pinch-cock on the pressure tubing to the needle. The washer is pierced, the pinch-cock opened and exhaustion proceeds, the pinch-cock is closed and the needle withdrawn. This method gives a satisfactory vacuum in a few seconds.

References.—1. McCartney, J. E. : THE LANCET, 1931, i., 583. 2. McCartney : Ibid., 1933, ii., 433.

A CASE OF UTERUS DIDELPHYS

ASSOCIATED WITH HÆMATOCOLPOS OF THE RIGHT VAGINA AND SIMULATING APPENDICITIS

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THE following case seems worthy of record not only in view of the difficulty in diagnosing it but also because uterus duplex separatis is rarely seen in living women, being normally associated with other malformations of the pelvis that are incompatible with life.

The patient, a girl of 12½ years, complained of severe dysmenorrhœa, tenderness of the abdomen, and vomiting. On examination she was found to have a temperature of 100° F. and a pulse of 100. There was definite abdominal tenderness, more marked on the right side ; she had already had three monthly periods, somewhat profuse, and the present one had started the day before and was excessive. Rectal examination disclosed a low pelvic tumour about the size of a grapefruit.

As the diagnosis was not clear an examination under an anæsthetic was performed on the following day. The patient was put in the lithotomy position ; hæmatocolpos was found on the right side, the septum bulging towards the left. The left vagina was carefully dilated and a separate cervix found, which was functioning normally. The septum was therefore dissected away, followed by the flow of from 6 to 8 ounces of dark black blood. A few catgut stitches were inserted through the fold of mucous membrane between the two cervices to stop the hæmorrhage, and the fluid was allowed to drain slowly away The patient made an uninterrupted recovery.

Thirteen years after this operation I had occasion to examine the patient again under an anæsthetic, partly because she was still suffering from occasional dysmenorrhœa and some menorrhagia, and partly because there was a question of a possible marriage. On this occasion I found a wide vagina, two cervices, and the remains of the base of the vaginal septum; the right cervix was caught up to the right wall, the left being more central, and the uterus felt broader than usual. The left cervical canal admitted the uterine sound with ease, the length of the cavity being 6 cm. I dilated the canal up to No. 9 Hegar, and took some curettings for examination. The right cervix only admitted the sound for 4 cm., and no curettings were obtainable. The pathological report on the curettings from the left side was that "the uterine endometrium showed some areas of interstitial hæmorrhage, possibly due to the curettage."

The difficulty in diagnosis is of some interest. The fact that there had been three normal periods made one hesitate to diagnose hæmatocolpos; the pyrexia and definite right abdominal tenderness and pain and the vomiting suggested appendicitis. A blood count was not done, but, even had it been, a leucocytosis would have been compatible with both a hæmatocolpos and an appendicitis. The patient is a normal girl in every other way.

REVIEWS AND NOTICES OF BOOKS

Surgical Diseases of the Chest

By EVARTS AMBROSE GRAHAM, A.B., M.D., F.A.C.S., Professor of Surgery, Washington University School of Medicine; JACOB JESSE SINGER, M.D., F.A.C.P., Associate Professor of Clinical Medicine to the School; and HARRY C. BALLON, M.D., C.M., F.A.C.S., formerly Assistant Professor of Surgery to the School. London: Henry Kimpton. 1935. Pp. 1070. 65*s*.

THE surgery of the chest is advancing so rapidly that, as the authors say, it is inevitable that some of the opinions expressed in any comprehensive work on the subject should already be out of date at the time of its publication. This work is unusually up to date in most places and only a specialist would detect the others. The material is treated authoritatively and each chapter is followed by a full and classified bibliography. The subjects described include everything that has ever been surgically treated in the chest from the cardiac valves and the œsophagus to the bones forming the thoracic cage. Certain chapters are outstanding. The one on bronchiectasis, for example, begins with an informative discussion of modern views on the ætiology of this condition and ends with a well-balanced review of the benefits that may be expected from various operative measures and the risks attendant on each. To the section of the book which deals with pulmonary tuberculosis Dr. R. C. Matson contributes a chapter on adhesion cutting in which he shows a preference for his own method of diathermy as opposed to the original Jacobæus electrocautery technique. An excellent chapter on oleothorax, its uses and limitations, was written by the late Dr. R. W. Matson, who unfortunately did not live to see the publication of the book. The chapter on the surgical treatment of pulmonary tuberculosis contains a full summary of the indications and contra-indications of thoracoplasty; the two-stage operation appears to be the one most commonly performed but reference is made to the recent tendency to make use of more than two stages. Phrenicectomy, in the authors' opinion, is often performed unnecessarily; although a most useful operation in cases in which paralysis of the diaphragm will be followed by limitation of movement, little or no benefit can be expected when the lung is already fibrotic and the diaphragm fixed. Phrenicectomy should not therefore be considered a necessary preliminary to thoracoplasty. The book concludes with a chapter on the chest service at the Barnes Hospital, St. Louis. The building is designed to provide small well-ventilated wards, each communicating with a balcony and placed conveniently near the operating theatre and X ray department. The facilities for treatment provided thus combine the advantages of a modern surgical hospital with those of a sanatorium.

For the advanced student this will be a valuable book of reference as it contains multifarious information, clearly arranged, which could not otherwise be obtained without laborious search amongst original articles in many languages. Illustrations, largely skiagrams, are plentiful and clearly reproduced.

A Text-book of Biochemistry

Edited by BENJAMIN HARROW, Ph.D., Associate Professor of Chemistry, New York City College; and CARL P. SHERWIN, M.D., Sc.D., Dr.P.H., LL.D., Member of the Staff of St. Vincent's Hospital and French Hospital, New York. London: W. B. Saunders Company. 1935. Pp. 797. 25*s*.

NOT very many years ago a student wishing for a text-book on biochemistry had great difficulty in finding one in the English language. To-day he is faced with a choice ranging from small elementary books to large and comprehensive volumes. Happily most of these books are good, though they differ widely in the mode of presentation of the subject, according to whether the author is mainly interested in biochemistry from the purely chemical point of view, or whether he approaches it from a physiological, physical, or pathological aspect. Prof. Harrow and Dr. Sherwin have attempted to avoid this restricted outlook by securing the collaboration of over 30 contributors, including several British workers. The book covers the field of biochemistry. On the whole the sections dealing with the purely chemical side of the subject are the best, and of these the chapter on carbohydrates deserves special mention in that it will bring the reader's knowledge on this complex subject right up to date. The section on the sterols, bile acids, and related compounds is rather disappointing, especially in view of the great advances that have been made recently. The author would have been well advised to go into more detail regarding the chemical evidence for the Rosenheim-King formula for cholesterol, since it is upon this groundwork that the whole of our present knowledge, not only of the bile acids and cholesterol, but also of the sex hormones and of certain vitamins depends. A very valuable chapter is that on the vitamins. In only 40 pages the author has succeeded in giving one of the clearest accounts that is to be found in the literature to-day of the present position. The historical introduction is really excellent; it enables the reader to follow the steps that have led to the establishment of the existence of vitamins and the various methods of separation, and finally the determination of their constitution.

An interesting account is given of immunochemistry,

giving prominence to the work of Landsteiner and his fellows. The author of the section on oxidations and reductions has tackled the subject in a fundamental manner and it is possible to see the foundations upon which the modern mathematical conception of oxidation-reduction indicators rests. The account of the hormones has been condensed unduly. Only 20 pages are devoted to this important branch of biochemistry and the historical introduction is definitely misleading. Thus the history of the internal secretory properties of the thyroid contains no mention of the names of Gull, Ord, Horsley, or Murray; it is surely a mistake to repeat in modern text-books the fallacious experiments of Brown-Séquard, and in any case, it is unfair to state that he "founded the science of organo-therapy."

The work as a whole is very good indeed, being both accurate and clear. The references are well selected and we commend the book to anyone requiring either a readable text-book or a not too compendious work of reference.

Diseases of the Heart

Third edition. By JOHN COWAN, B.A., M.D., D.Sc., F.R.F.P.S., sometime Professor of Medicine, Anderson College of Medicine; Consulting Physician, Royal Infirmary, Glasgow; and W. T. RITCHIE, O.B.E., M.D., F.R.C.P.E., F.R.S.E., Professor of Medicine and Clinical Medicine, Edinburgh University; Physician to the Royal Infirmary and Director of the Medical Unit of the Municipal Hospitals, Edinburgh. With a chapter on the Ocular Manifestations of Arterial Disease by ARTHUR J. BALLANTYNE, M.D., F.R.F.P.S., Lecturer on Ophthalmology, University of Glasgow. London: Edward Arnold and Co. 1935. Pp. 631. 30*s*.

IN this new edition the text has been almost entirely rewritten, and much new matter has been included without an appreciable increase in the size of the book or alteration of its character. It is essentially an exposition of the authors' own experience and teaching in cardiology, presented in attractive and readable form.

The chapters dealing with disturbances of rhythm form one of the best sections of the book. The subject is treated comprehensively, yet essentially from the clinical aspect, and all unnecessary technicalities have been avoided. Many illustrative graphic records are included, the attached legends being clear and self-explanatory. In the nomenclature of electrocardiograms of bundle-branch block the authors have not adopted the newest terminology, but they have wisely avoided confusion by abandoning altogether the designations "right" and "left."

No particular plan has been followed in the arrangement of the subject matter and the sequence of the chapters is somewhat haphazard. Rheumatic, syphilitic, and congenital heart disease are separately considered, but arterio-sclerotic heart disease is discussed under various headings, little attention is paid to the heart in hypertension, while the thyrotoxic heart is scarcely described.

The section entitled Diseases of the Arteries is open to criticism. Arterio-sclerosis is defined as a diffuse affection of the arterial tree caused by high blood pressure, and the term arterio-sclerosis is frequently used in the text when hypertension is under discussion. This is likely to prove both confusing and irritating to those accustomed to modern terminology. The statement (p. 559) that digitalis is usually injurious in cases of arterio-sclerosis with heart failure will probably astonish many readers. In the chapter on treatment, more information might, with advantage, have been given about the use of mercurial diuretics such as Salyrgan, which represent the greatest advance in the therapy of heart failure since digitalis was introduced.

Having made some minor criticisms, we must pay tribute to the book as a whole. For a volume of moderate size, it contains an extraordinary amount of information. Statistics based on analysis of the authors' own cases are to be found in all sections of the book, and should prove an invaluable source of reference. The illustrations deserve especial praise; they are almost all original, are beautifully reproduced, and add greatly to the interest of the book. Compared with the last edition, the paper has been improved and, instead of references inserted as footnotes, a serviceable bibliography is appended to the text.

Dictionary of Applied Chemistry

Supplement, Vol. II., N–Z. By JOCELYN FIELD THORPE, C.B.E., D.Sc., F.R.S., F.I.C., Professor of Organic Chemistry and Director of Organic Laboratories, Imperial College of Science and Technology; and M. A. WHITELEY, O.B.E., D.Sc., F.I.C., formerly Assistant Professor of Organic Chemistry to the College. London: Longmans, Green and Co., Ltd. 1935. Pp. 727. 60*s*.

IN compiling the three supplementary volumes—the first of which, covering A to M, was noticed in our issue of March 23rd of this year—the editors have assumed that the inquirer has access to the main work, which appeared ten years ago. Some of the articles in the supplementary volumes deal separately with work done during the last decade; others, and these are the most useful, are really monographs on the present state of chemical knowledge in the particular subject with which they deal. The articles on petroleum, photography, radiology, and spectroscopy, and the classified description of the more recent synthetic medical products are of especial interest, but all through the volume are short notes on things that touch medicine closely, such as protein degradation products, thallium, toad venom, vitamins, which the investigator or research worker will overlook at his peril. The publication of the third volume, which will provide a glossary and a comprehensive index to the supplementary volumes, will restore the full value of Thorpe's Dictionary as an up-to-date guide to applied chemistry.

Some Thoughts of a Doctor

Revised edition. By F. PARKES WEBER, M.A., M.D., F.R.C.P., F.S.A. With a Preface by Sir W. LANGDON BROWN, M.A., M.D., F.R.C.P. London: H. K. Lewis and Co. Ltd. 1935. Pp. 184. 6*s*.

WITHIN the compass of 184 pages Dr. Parkes Weber has written 31 essays and papers on various subjects which he has thought about from time to time. He has something to say on eugenics, on free-will (which he regards as a precious endowment found only in small quantity and in few persons), on the gambling spirit and on nightmares, to pick out only four of the things which have interested him. Throughout he writes modestly and often with humour. The result is a provocative and stimulating book. The contemplative reader, whether agreeing or not with Dr. Weber's views, will admire his scholarship, balance, and essential kindliness of outlook.

Konstitution und Tuberkulose im Kindesalter

By Dr. KURT KLARE, Ärztlicher Direktor der Prinzregent-Leutpold-Kinderheilstatte-Scheidegg. Leipzig: Georg Thieme. 1935. Pp. 42. M.4.

THIS question of seed and soil in tuberculosis is, as the author remarks, of long standing, running as a thread through the whole history of the subject. To the old masters of medicine the habitus phthisicus was the all-important factor. Then came the discovery of the tubercle bacillus and opinion swung to the other side. Now the time has come for assessment and correlation of the two points of view. Dr. Klare interprets the word constitution broadly, so as to include not only man's habitus and his physiological functions, but also his reactions to life and his psyche. Various constitutional factors as they affect tuberculosis in childhood are discussed in turn: the endocrine glands, the effects of puberty, the resistance of the lymphatic system, and so on. Two well-known types of tuberculous child, the hectic-looking, bright-eyed, alert type, and the soft, flabby, dull one are described. These discussions occupy the first 18 pages —i.e., rather less than half of the monograph. The remainder is devoted to a description of cases illustrating various types, with photographs of the children, radiograms, blood counts, and case-histories. The subject is an attractive one, and Dr. Klare leaves the reader with a desire to explore it further.

A Text-book of Histology

Sixth edition. By HARVEY ERNEST JORDAN, A.M., Ph.D., Professor of Histology and Embryology, University of Virginia. London and New York: D. Appleton-Century Company, Inc. 1934. Pp. 738. 30s.

THE chief alterations which have been made in this text-book are in its external appearances. The paper and binding are considerably heavier than in the former editions, and the whole book is enlarged as well as increased in price. A few revisions have been made in the text, the most extensive of which are in the sections dealing with the blood and reticulo-endothelial system. Some new illustrations have been added, but otherwise the general plan of the former editions has been maintained.

Human Physiology

Second edition. By F. R. WINTON, M.D., Reader in Physiology, University of Cambridge; and L. E. BAYLISS, Ph.D., Lecturer in Biophysics, University of Edinburgh. London: J. and A. Churchill Ltd. 1935. Pp. 627. 15s.

THERE are few satisfactory text-books of physiology of this convenient size, because it is difficult to dissociate brevity from a popular type of treatment on the one hand, and a mere cataloguing of facts on the other. In this work the explanations are, for the most part, clear and logical, and the diagrams have been selected from a wide field of original papers; very few of them are of the schematic type, and many convey additional information to the discerning reader. In fact, perhaps the most striking feature of this book is the care with which the illustrations have been chosen and the way in which they amplify the text. The student is presented with a reasonably short account of each subject, but he is brought into contact with the actual experiments which have been made, and does not feel that his intelligence has been under-estimated. This edition is a great improvement on its predecessor, much new work having been introduced and some mistakes and inconsistencies in the text eliminated. The authors have drawn freely on the experience of experts in different branches of the subject, and several of the sections have actually been written by them. The book is well up to date, containing the first "text-book accounts" of several recent researches; all sections show evidence of revision; and a useful guide to the literature is supplied at the end.

The book can confidently be recommended to students with no more reservation than that they may have to do a certain amount of additional reading.

Die Behandlung der Knochenbrüche durch den praktischen Arzt

Second edition. By Geh. Hofrat Prof. Dr. FRITZ LANGE. Munich: J. F. Lehmann. 1934. Pp. 142. M.4.20.

THIS small volume has been written with the object of assisting the doctor who has to treat fractures in general practice, without the advantages of specially designed apparatus and opportunities for applying the more modern methods of traction and splinting. Dr. Lange has been impressed with the unsuitability of most of the methods taught to the student when he comes to work in the patient's home, at a distance from special clinics. He considers that the plaster-of-Paris technique is of much more value to the ordinary doctor than are methods of skeletal traction, and describes in detail his special technique and its application to all the ordinary fractures. He applies the plaster, not as does Böhler, directly to the unshaven skin, but over a varying amount of padding. All the important bony points are protected by pads of felt or some other material. Ladders, chairs, and cupboards are most ingeniously called into service in slinging limbs during the application of the plaster splint; and temporary extension is obtained by the use of buckets of water, the weight of which can, of course, be easily regulated.

As this book is likely to be widely read, it is worth correcting a misstatement contained in it. Referring to the mortality from fracture of the femur in the late war, and the effect on this mortality of methods of transportation, Dr. Lange states that the mortality in the German army from these injuries was 51·5 per cent. This figure, he says, though serious enough, might have been worse, as the English and French mortality, at the beginning, amounted to 80–90 per cent. The entrance of the Americans into the war, with their better orthopædic technique and their introduction of the use of the Thomas's splint, had, according to Dr. Lange, the effect of reducing this mortality to 5 to 10 per cent. The facts are that Sir Robert Jones urged the adoption of the Thomas's splint for transport on the field as early as 1914; that in 1916 considerable numbers of cases were already reaching the casualty clearing stations put up in this splint; and, according to Major Meurice Sinclair ("Fractures," London, 1931) who was in charge of one of the special fractured femur hospitals in France, that the mortality from compound fractures of the femur, which in 1915 was 80 per cent., had been reduced to 15 per cent. by the following year, the change being largely due to the "early, efficient, and continuous" use of the Thomas's splint.

The book is well illustrated and very practical, and should be assured of popularity.

THE LANCET

LONDON: SATURDAY, JUNE 15, 1935

THE MEDICAL CURRICULUM

WE publish this week in substance, with the resolutions in full, the report of the special committee of the General Medical Council on the revision of the medical curriculum. The committee was appointed about a year ago to consider various information and proposals received by the Council, certainly over some considerable period, which had for their object the improvement of the educational course; and the Council adopted the report, receiving it as an interim document, and decided that it should be circulated to the licensing bodies and to the deans of medical schools for their observations, when the whole matter will be considered further by the Council at the next session in November, 1935. The profession therefore has not before it a definitive document, but one that records the opinions of the committee in the form of resolutions which are to receive further consideration from bodies and persons directly concerned in the translation of opinions into action, while the views of the different educational authorities have again to undergo scrutiny by the Council as a whole before actual measures of reform will result.

The report confirms the accuracy of much of the criticism of the curriculum which has been rife for many years, although in places the committee indicate where criticism appears to have been ill-founded, certain popular assumptions being made without any, or any complete, warrant. They hold that the fundamental system of our medical education and the methods of its conduct are sound, and that by comparison with the standards of qualification prevailing in other countries our own system is good, and that its improvement can be best advanced by developing and re-shaping it. They find the length of the curriculum, the subjects required, and the order in which they are studied, to need no alteration, and they look towards a more economical use of the statutory period of five years, together with an improved standard at entrance, to remove many objections that have been urged by different authorities and educational centres against some of the present regulations, or, rather, against some of the results that have followed upon their observance. The plea for a shorter educational course, implying the creation of a class of practitioner trained to deal with the routine and emergencies of general practice, receives no mention; the committee have, of course, perceived that any attempt in that direction would be fraught with peril, if only because definition of what such a course should be is impossible. They have had in mind how best to enable the student to cover the ground which modern medicine demands of its followers without extending the present term, and they look to economy in time, to avoidance of overlapping in the studies, and to team-work among the teachers to remove the more obvious defaults, while leaving the teachers with opportunities to give instruction along important lines which to-day are left aside. So far from regarding an abbreviation of the course as an answer to complaints of its severity and expense, the committee have replied to those who in effect are demanding its extension by suggesting how developments in scientific medicine can be met in the curriculum without increasing its length. At certain points more particular indications for reforms would have been welcome, but it must be remembered that the report is an interim one, and that the Council, while it represents all the centres of medical education in the country, has always felt it proper to leave each of those centres great individual discretion as to their methods and domestic work. We may expect from the centres detailed information following upon the general recommendations submitted to them.

An example of where more definite opinion would have been valuable is found in the section referring to biology. Included among the preliminary scientific subjects it none the less cannot or does not receive attention in many of the secondary schools. It has therefore also to be a subject in the medical curriculum proper, and is very rightly placed there in the committee's scheme. But in the resolutions with regard to instruction in anatomy and physiology no special place seems to be allotted to any course in biology as such. Instruction in the subject before registration cannot be made compulsory upon students who have had no opportunities of obtaining the necessary training, but how the untrained student is to make up his deficiency is not alluded to. Information from some of the training centres may assist here in meeting a difficulty. The keeping of the training of students in the same year identical is so convenient that no other procedure can be contemplated, yet with regard to biology the beginners do not start from a common mark. This may seem a small point, but in view of many developments in scientific medicine, it is one worth attention. The general view is endorsed that regular instruction in applied anatomy and physiology should be carried on during the period of clinical studies, and under the instruction of clinical as well as special teachers, an opinion to which the recent report (see THE LANCET, May 18th, p. 1161), being the issue of a conference between representatives of the universities of Oxford, Cambridge, London, and the English licensing bodies, gave particular effect by proposing the formation of a joint board of teachers dealing with the ancillary subjects and pathology so that concerted action might be arrived at. At this point one opinion of the G.M.C. committee will not, we feel, receive general approval. They recommend, dealing with

anatomy, that the whole body should be dissected, and many must regard this as unnecessary, and an anomalous suggestion when time is to be found for bringing anatomy into relation with clinical medicine, as is so rightly proposed. That special dissections accompanying research will be made as a matter of course at a later stage by those who are working along special lines is obvious; but remembering the opportunities which the student now possesses for seeing without actually dissecting the details of much anatomical structure, we think that dissection of the whole body is needless, and that many teachers of anatomy will agree with that view. From these teachers definite counsel may be derived as to how the range of their subject can be modified so that needless burdening of memory is avoided and more time found for the acquisition of fundamental knowledge equally useful in future stages of the curriculum and in professional practice. And when the student is bringing the knowledge that he has acquired of anatomy, physiology, and chemistry, under its three headings, to his assistance in the study of pathology, it might be well that pathology should be considered from a rather different angle than that suggested by the report. Pathology is the science of diseased processes on which clinical medicine must be based, while the words of the report imply that clinical medicine is as yet divorced from this science. The words used are meant, probably, to convey that the pathologist instead of concentrating on morbid anatomy should develop his science until it has become an integral and necessary part of clinical medicine. But surely that is what he is doing.

The analysis of the curriculum as given in the report is beautifully clear. Many of the general recommendations for its improvement are those that have been made, some of them over and over again, but they gain force by the endorsement of the central educational authority. Two new recommendations, if acted upon, would render the first stages of professional life far less perplexing to the young doctor while making his services of markedly greater value to the community. It is to be hoped that they will receive support from the various educational centres, as to carry them into effect may not be universally easy. We are referring here to the necessity of the student residing for a certain period within an institution while he is undergoing the later stages of his training, and to the proposal that after qualification he should hold a resident appointment. Both procedures have been advocated in many quarters, and the first is to some extent in actual action; the advocacy of the G.M.C. will be warmly approved. Other passages in the report which point to useful developments in the student's training are the recommendations that the curriculum should include more organised instruction in such subjects as child welfare, pædiatrics, psychology, and radiology. All will recognise that a certain knowledge of the fundamentals of such matters is to-day necessary for the practitioner's equipment.

THE HEALTH AND DIET OF THE SCHOOLBOY

IN most modern resident schools for children of all ages food is provided in ample quantity, though the distribution over the day is sometimes open to criticism, and the proportion of protein, especially first-class protein, to carbohydrate and fat is still often regrettably low. There seems to be an impression among parents that in general boys at preparatory schools are well fed and that the tradition of public schools permits a much lower standard in quality and variety, as well as in cooking and service of meals. The supplementary hamper from home, however, which used to be accepted as almost a necessity, has now become an agreeable incident in many schools, and in some, we understand, is even forbidden. There can be no doubt of the general physical improvement which has followed the greater attention devoted to diet in schools, and not in this country alone. By a careful statistical analysis of the measurements of school-children in Berlin, Dr. GEORG WOLFF has clearly shown that both the school entrants and school leavers in that city have substantially improved in their height and weight over the nine years 1924 to 1932.[1] A similar improvement is to be seen in the English schoolboy according to the extensive observations published by Dr. G. E. FRIEND, the medical officer of Christ's Hospital, Horsham, whose records of growth and diet are more detailed than any previously issued in this country.[2] For instance, in his experience, boys aged 14½–15½ years in the school year 1928–29 were 10 pounds heavier and just over an inch taller than boys of the same ages in 1919–20, while boys of 9½–10½ years were 4 pounds heavier and one-fifth of an inch taller in the later year than their predecessors of 1919–20.

The study of these measurements, analysed under the direction of Prof. MAJOR GREENWOOD, Dr. FRIEND supplements with a detailed inquiry into the diet provided in the school over a period of 20 years, 1913 to 1933, and with a clinical survey made over the same period. Dividing the 20 years into four sections, the food consumption, the physical measurements, and the incidence of disease can be correlated in an interesting manner. In the years 1916–22 there was an average calorific intake of 2780, but the proportion of first-class to second-class protein was relatively low, while, in comparison with previous years, there was a reduction in the proportion of animal fat consumed, and a substitution was made of margarine for butter. During this period the average heights and weights were below the estimated pre-war values (exact pre-war measurements are not available) but, on the other hand, the general health of the boys was good except for a higher incidence of rheumatic affections than in subsequent years. The incidence of fractures was also relatively high in these years. The

[1] THE LANCET, April 27th, 1935, p. 1006.

[2] The Schoolboy; a Study of his Nutrition, Physical Development and Health. Cambridge: W. Heffer and Sons, Ltd. 1935. Pp. 128. 7s. 6d.

average number of fractures per year was 6 in 1914–17, 14 in 1918–22, and again 6 in the 11 years 1923–33. The most serious diet deficiences in the middle period were the limitations of the milk-supply and the replacement of butter by margarine, which leads Dr. FRIEND to conclude that the greater fragility of the bones was probably due to a shortage of bone-forming minerals and a deficiency in the supply of fat-soluble vitamins. It would be interesting to know whether this time-sequence of fractures has been observed in other schools. In the last period, 1927–33, the diet has the comparatively high average calorific intake of 3014, derived from 397 g. of carbohydrate, 92 g. of protein, and 108 g. of fat. Larger amounts of butter and milk are now included, the amount of bread has declined but that of sugar has increased. The diet is a generous and well-balanced one but apart from the relatively low incidence of rheumatism, already referred to, the sickness records show surprisingly little variation though, as stated, the physical measurements have much improved.

The incidence of colds, fevers of unknown origin, and chills does not appear to be in any way clearly related to changes in the diet, while influenza and the incidence of complications arising from it have increased under the conditions of improved diet. Septic conditions —e.g., boils, impetigo—have also shown a somewhat higher level in the most recent years, and may, Dr. FRIEND suggests, be related to the rising sugar consumption. This is one of the many interesting observations of his study which show the desirability of further investigation on the lines he has adopted. Dr. FRIEND also stresses the value of his records of physical measurements as a clinical aid to the school medical officer. Any boy who is seen to be failing to keep his normal rate of progress is detected, often long before he himself would have reported sick. A failure to show a satisfactory increase in height is usually found to signify little, whilst regression in weight may or may not be important. Regression in the chest grade or in any two grades at the same date is held to indicate an immediate need for inquiry. The most reliable results have been obtained by the use of "time-increment" tables which show weight, height, and chest grades for every six months of age. Dr. FRIEND gives his tables in full and individual examples of their use, and this aspect of his work deserves particular consideration.

A NEW POISONS CODE

THE Pharmacy and Poisons Act, 1933, provided for the formation of a Poisons Board which should be required to prepare a list of substances to be treated as poisons under the Act. This list is referred to in the Act as the "Poisons List." The Act also empowered the Home Secretary, after consultation with the Poisons Board or on its recommendation, to make rules relating to poisons. These rules are termed the "Poisons Rules." The Board held its first meeting in December, 1933, and has now, after many committees and subcommittees, published its report,[1] which contains the Poisons List and the Poisons Rules. The constitution of the Board, to which we have recently alluded,[2] enabled it, with the help of Mr. M. D. PERRINS of the Home Office to whom tribute is paid, to perform a task of considerable difficulty—nothing less than the construction of a new code to replace existing legislation. It was wisely decided that the new code should resemble the present restrictions, but be freed from their defects, and the Board submitted a first draft of provisional proposals to the organisations likely to be affected. The draft received wide publicity in trade journals and was circulated to the police forces. As a result of this extensive consultation many of the original proposals were substantially modified. Its chief function the Board construed to be the utmost reasonable protection of the public from the danger of death or injury from criminal or accidental poisoning. It had to bear in mind the problem of suicidal poisoning, but it was unwilling to include a substance in the Poisons List merely because it might be used as a means of self-destruction, if it carried no real danger of accidental or criminal poisoning. Aspirin is quoted in the report as an illustration. Statistics show that during the period 1925 to 1933 there were 106 fatalities attributed to the taking by suicides of large over-doses of aspirin; it would be unreasonable on this account to schedule aspirin as a poison. Protection of the would-be suicide from himself is beyond the power of legislation; apart from poisoning there are other easily available modes of death.

In the construction of the Poisons List much difficulty was encountered in regard to nomenclature. There has never been a satisfactory definition of the term "poison" upon which to base restrictions; the popular definitions are all either too narrow or too wide for legal use. The report in fact admits that for practical purposes the word is indefinable. Many toxic substances in the list gave trouble to indicate precisely. The list is made as descriptive as possible, terms such as preparations, admixtures, and derivatives being avoided. It contains the well-known older poisons and also many substances of comparatively recent introduction. In Part I. are to be found the dinitrophenols and dinitrocresols which have recently aroused interest as metabolic stimulants. The more powerful endocrine products are represented by insulin and the principles of the thyroid, pituitary, and suprarenal glands. The barbiturates are listed in a short but comprehensively definitive two dozen words. The Board was divided in opinion about the inclusion of Lysol in Part I., and its retention was the outcome of a vote; the reasons actuating the majority and minority are set forth in the report.

The Poisons Rules concern the regulation of the sale and supply of poisons. The power behind them arises from Section 23 of the 1933 Act which allows them to modify the provisions by both

[1] Home Office: Report of the Poisons Board. Cmd. 4912. H.M. Stationery Office. Pp. 62. 1s.
[2] THE LANCET, Feb. 2nd, p. 278.

addition and subtraction or relaxation of regulations. This section also provided for the regulation of the storage and transport of poisons, and of the containers in which poisons may be sold or supplied; for the manufacture of pharmaceutical preparations containing poisons and for prohibiting the retail sale of poisons except upon a prescription given by a qualified medical, dental, or veterinary practitioner. Hitherto all these matters have been uncontrolled. At every point the motive of restriction is the prevention of criminal or accidental poisoning. In regard to accident, emphasis is laid upon the fact that the principal object of control is to ensure that persons handling poisons are made aware that they are doing so, either by means of a cautionary label or by markings on the container, or by its shape. The rules do almost all that can be done by legislation in this respect, but they cannot guard against want of care or gumption in the home which is the point of greatest danger. The common foolishness of keeping poisons about the house in ordinary bottles and not under lock and key is deplored in the report. One of the saddest features of this form of folly is the toll it takes in the lives of little children, as was pointed out by AIKMAN [3] in a recent paper setting out his experience in America; in the United States more than 500 deaths from acute poisonings (gas excepted) occur yearly in children under five years of age.

[3] Aikman, J.: Jour. Amer. Med. Assoc., 1934, ciii., 640.

An important proposal in the rules is designed to abolish the medley of types of so-called poison bottles. It is proposed that the standard bottle shall have its outer surface fluted vertically with ribs or grooves recognisable by touch. The report discloses a feeling among several members of the Board that in regard to certain medicines, notably barbiturates, there should be compulsion to label with the word "poison" or to warn the patient against disregard of prescribed directions. After consideration however it was decided to be inadvisable to depart from the established custom whereby the information given on the container of a medicine does not disclose the name or character of its ingredients—since it is not always desirable that the patient should be cognisant of the nature of the medicament prescribed. The rules include special provisions for the storage and dispensing of poisons in hospitals. These regulations have been anticipated by local rules in the majority of hospitals, but in those where conditions are lax they will serve as a timely and necessary compulsion. Particular importance is attached to the routine inspection by a responsible officer of the poison stores and poison cupboards.

The report is the result of much work in a difficult legislative field. It is clear, and as concise as is compatible with the complexity of its subject. Its object has been to replace existing legislation, criticised by the Departmental Committee as a "patchwork of provisions," and it may be held to have fulfilled this aim.

ANNOTATIONS

MINOR AILMENTS OF LONDON WATER

LAST week in room 4 of the London Government Exhibition at the County Hall was staged the story of how the Metropolitan Water Board ensures a safe supply of drinking water. By an appropriate coincidence this year is the golden jubilee of the regular bacteriological examination of the water-supply of London. This was initiated by Percy Frankland, who adopted Koch's then new plating method for the numerical examination of micro-organisms. The aim of water examination was, he held, to find out if a water is contaminated with sewage. The next advance was the utilisation of *B. coli* as an index of pollution, in America by Theobald Smith, in this country by Klein, in whose laboratory Mervyn Gordon and Houston worked. Gordon studied the *coli* group and classified its varieties; Houston stressed the value of quantitative tests and worked out provisional standards. When he was appointed director he was using a glucose primary medium, the disadvantage being that it required seven days for completion. Then followed the quintuple preferential *B. coli* test, by means of which results were obtained in from three to four days. Finally, in 1928, a presumptive test of the quantitative presence of unconfirmed *B. coli* was adopted, by which tentative information could be acquired in 18 hours and confirmed as above. So much for the detection of dangerous contamination, now under the control of Lieut.-Colonel C. H. H. Harold, M.D. One of his exhibits dealt with the non-bacterial growths in water which although not dangerous to life are a source of perplexity to the water engineer and sometimes of annoyance to the consumer. In August, 1929, Houston wrote a personal letter to a large number of consumers. "I am sorry," he said, "not to have been able to write to you sooner to express my sincere regrets at the inconvenience caused you by the taste of the water supplied to your house. . . . The trouble, due to the decay of harmless vegetable matters, has now been completely overcome, and I feel sure will not recur." The trouble was the growth of an alga, in this case the tufted variety of oscillaria, masses of which had been blown by south-east winds into the outlet of the Island Barn reservoir, and were carried down the main on to the Surbiton works. It was necessary to scour a 54-inch raw-water main, a costly and unpleasant job, and to clean the filter-beds. This is an example of the kind of trouble which has arisen from time to time in river water both from the Thames and the Lee, sometimes the trouble brings complaints of taste from the consumers, but usually simple mechanical clogging of the filters results with greatly added costs of bed cleaning against time and the difficulty of maintaining an adequate supply. In the matter of taste Houston's own feeling was that river-derived waters always have a taste, except perhaps during certain months. People used to say to him, "I like the taste of London water better than any water I have tasted elsewhere." Many algal growths in the reservoirs although capable of taste production may never give rise to a single complaint from consumers. Houston made many experiments to discover remedial measures, but without immediate success. For taste removal he found chlorination useless, and aeration at all events

under laboratory conditions proved futile. Treatment with permanganate was also disappointing, except in the case of tabellaria, but ozone and activated carbon—in popular language "super-charcoal"—were generally effective. For algal control additions of 0·1 to 0·5 parts per million of copper sulphate have given fair results, but recently a combination of copper, ammonia and chlorine, named for convenience cuprichloramine, has proved to be a more effective algicide. Added to the raw water before it reaches the reservoirs the algæ are killed and sink to the bottom; although without visible means of locomotion they are able while living to remain suspended in water against the effect of gravity. The superiority of cuprichloramine appears to reside in the penetrating property of ammonia which then brings into effect the toxic actions of copper and chlorine, and it would appear quite uncertain whether the liberation of oxygen by chlorine has any lethal effect. The presence, amongst the exhibits, of cuprammonium, which by dilution and chlorination is converted into cuprichloramine, is one of many illustrations of the march of progress, and of the continuous care exercised by the Metropolitan Water Board in the interests of the consumer.

INTERNATIONAL CAMPAIGN AGAINST RHEUMATISM

A LETTER, influentially signed, will be found on a later page calling serious attention to a modest organisation on whose efforts there has followed widespread activity, but which are for the moment embarrassed for want of funds. Communications of this sort are too apt to be looked at askance from the outset owing to the large demands made. A big sum is named, usually to be raised by some capitation fee to be received voluntarily from the mass of the medical profession, and at once the probable failure of the request for subscriptions is seen. Here only immediate need is pleaded, and that is so comparatively small that it ought to be met at once. The International Campaign against Rheumatism was formed in London ten years ago as a league, with the blessing of the Ministry of Health. A conference at which France, Holland, Denmark, Switzerland, Roumania, and this country were represented, resulted in the setting up of a central international council whose duty it should be to distribute the facts and arouse the general conscience to the evils that follow conditions generically termed rheumatism, and to the possibility of abating those evils by organised effort. The *Acta Rheumatologica*, a periodical in three languages, was produced and widely circulated and a small central bureau and library were opened. Important international congresses were arranged with the help of national committees and with the support of representatives of the countries most seriously affected, and in this way examination of many outstanding problems related to rheumatism has been conducted. The expenses so far incurred at the bureau and for the production of the journal, the *Acta Rheumatologica*, have been discharged by personal subscriptions and by contributions from the national groups. But the latter source has largely dried up under the economic conditions under which the world is abiding. It is in the nature of a shock to learn that this policy of abstention has been pursued in this country, which, embarrassed as it may be, cannot plead a position comparable to that existent in the other countries which have hitherto supported the movement. A sum of £1000 is all that is required in the present emergency, while a guaranteed annual subscription of some similar sum would enable the League to pursue efforts which have already been of high practical value. We feel that, when the situation so clearly set out in the letter referred to is realised, the obvious remedy should follow.

PREGNANCY TOXÆMIA UNDER CONTROL

AUTHORITATIVE statements as to how far antenatal supervision can prevent deaths from pregnancy toxæmia are few and far between. It is useful therefore to have a report from Falls [1] on his experience of 500 cases of eclamptogenic toxæmia seen at the universities of Illinois and Iowa over a period of twelve years. While the series is relatively small, it has the advantages of being accumulated under the personal supervision of one man and under one system of treatment. The prenatal care given was simple but thorough, consisting chiefly in examination of blood pressure and urine twice a week from the 28th week onwards. The treatment of the toxæmia itself was orthodox; in the fulminating cases pregnancy was terminated by Cæsarean section, and in others by induction of labour. Such procedures as intravenous injection of magnesium sulphate or glucose were not considered essential. There were only two deaths; indeed, so low was the incidence of eclampsia that Falls almost bewails the fact that he was unable to demonstrate the treatment of this condition to his students once in two years. On the other hand he can congratulate himself on having reduced the mortality in his cases of pregnancy toxæmia to the usual level of mortality among pregnant women in general. That such results are obtainable has often been emphasised in this country, but the rigorous antenatal supervision that should be the rule is still too often neglected, and apathy and indifference are regrettably common.

THE ROME HOSPITAL CONGRESS

THE fourth international congress of hospitals, held in Rome from May 19th to 26th, did some serious work in spite of the distractions of the Eternal City. Six hundred delegates represented 47 nations. The first subject on the agenda was one of the most important, being the hospital as a link in a systematic public health chain, and Dr. J. L. Brownlie's paper, of which we published an abstract last week (he was unfortunately unable to be present) showed where the Scottish health authority is aiming. Later in the congress Dr. A. F. Cooney, who with two colleagues represented the Irish Hospitals Commission, dealt with the cognate subject of the importance of the hospital staff in relation to the community. Hitherto, he said, the advice of the hospital had usually been sought for illness. Now the public health authorities are coming to seek its aid in the prevention and preventive treatment of disease, a change with which hospital policy must reckon. Dr. W. Alter of Syracuse, opening a discussion on the out-patient department, insisted that it should include occupational therapy. The restoration and assurance of the patient's power to work at his calling must, he said, never be lost sight of and never be prejudiced by false romantic views as to light and air. "His occupation should only be changed when it is unavoidable"—a remark in singular harmony with recent correspondence in our own columns. Dr. T. J. Heldt, of Detroit (Mich.), surprised the congress with his assertion that in the

[1] Falls, F. H.: Amer. Jour. Obst. and Gyn., March, 1935, p. 316.

U.S.A. the nervous and mental patient required hospital service greater than that of all other patients put together. There were in round numbers a million hospital beds in the States, and last year a fifth, he said, of all these beds were occupied by patients suffering from one mental disease alone, namely, dementia præcox. He made the shrewd suggestion that this was very likely true of other nations. Some idea of the scope of the congress and of the work of its preparatory subcommittees can be gained in the current issue (January–April, 1935) of the quarterly hospital review *Nosokomeion*. A popular feature of the congress was the exhibition of model of hospitals in Italy, the Italian delegates being anxious to show that Italy is not behind any country in both construction and equipment. There is, it seems, abundant material for international discussion at these gatherings without dissipating power in fruitless controversy. Thus, at the suggestion of Pope Pius XI. the subject of contraception was deleted from the agenda of the congress, and on a motion by a group of Dutch physicians a discussion on sterilisation was excluded from the programme of a particular session. On the other hand Capt. J. E. Stone, secretary of the Birmingham Hospitals Centre, had the satisfaction of getting his system of hospital accountancy adopted in principle. The International Hospital Association will now advise hospitals all over the world to show their expenditure classified under various headings. And then for the first time useful comparisons can be made. The congress was followed by a sight-seeing tour to Naples and Sicily.

ATEBRIN MUSONATE IN MALARIA

MUCH has been said in the lay press about the successful use of Atebrin musonate during the malaria epidemic in Ceylon, and it is interesting to see the first serious medical report on the effects of this new soluble preparation of atebrin. Dr. J. R. Blaze and Dr. A. T. W. Simeons [1] describe it as the atebrin salt of musonic acid—a yellow powder, readily soluble in water, and supplied in dry ampoules each containing 0·125 g. Each dose is dissolved in 3 c.cm. water for intramuscular or intravenous injection, and the amount suggested for intramuscular use is one to three ampoules, and for intravenous injection one ampoule. Of their 21 cases (mostly of subtertian type) 8 had a single intramuscular injection of 0·3 g.; 9 had two injections on successive days, some intramuscularly and others intravenously; and the other 4 had oral atebrin as well. The paper is illustrated with 21 charts, and it is clear that they represent the clinical effects of this treatment: in some the temperature dropped immediately; in others there are two, three, and sometimes four subsequent attacks of pyrexia, as might be expected. Similar charts, however, can be obtained with intramuscular quinine, or may even be paralleled in cases receiving no treatment at all. What we really require therefore is evidence of the effect upon the parasite, and here Blaze and Simeons's paper is again rather unsatisfactory. A single injection of 0·375 g. atebrin musonate is followed by temporary disappearance of the parasite, but this was not always seen in heavy malignant infections. Two injections of the same dose, given on two successive days, seem to control the temperature within 48 hours and to cause disappearance of both forms of parasite within four days; but crescents (gametocytes) do not appear to be influenced in any way. In some cases the ring form of the parasite reappears within a few days, but it is said that they disappear again spontaneously. On the whole it is thought that the intravenous route, though harmless, is less satisfactory than the intramuscular. Blaze and Simeons are satisfied with the immediate results of the treatment; but they agree that the period of observation has not been long enough for a comparison of the relapse rate of atebrin musonate with that of oral atebrin or quinine. It is hardly conceivable, with this evidence in front of us, that a massive malaria infection can be entirely eliminated from the body by means of two comparatively small injections of this admittedly potent antimalarial drug. The histories of all other protozoal blood infections suggest that much more prolonged and intensive therapy will prove necessary. It is a relief, however, to know that this new method is comparatively harmless and has no disagreeable effects.

[1] Indian Med. Gaz., April, 1935, p. 185.

INTRAVENOUS PITUITRIN IN OBSTETRICS

THE popularity of pituitrin in obstetric practice has varied during the last two decades. In most patients its administration leads to a fairly uniform increase in the number and strength of the uterine contractions, but sometimes this increase does not take place and the uterus goes into spasmodic contraction or the patient rapidly enters into a state of profound surgical shock. Smaller doses and slower administration have been shown to lessen the risk of both these complications, and accordingly it is surprising to find Baron [1] of Montreal recommending intravenous injection, albeit in minute doses. Zorn in 1926 first described this method, and maintained that quantities as great as 0·25 c.cm. were safe. Baron advises doses of one minim, and reports that when the drug was thus used to aid induction of labour following rupture of the membranes, the first contraction appeared soon, lasted about six minutes, and after an interval of 20–30 seconds was followed by a second lasting two to three minutes. This in turn was succeeded by good strong and regular pains in all but 1 of 55 cases. The drug was also used in this manner with success in 9 cases of "tired uterus," and in 15 cases the low application of the forceps was obviated. Clearly the outstanding advantage of this method is its certainty of action. But the series of cases reported is too small to carry much conviction and by no means proves it free from the danger of pituitary shock or rupture of the uterus.

[1] Baron, H. A.: Jour. Obstet. and Gyn. Brit. Emp., April, 1935, p. 322.

MINISTERS OF HEALTH

THE reconstitution of the Cabinet last week has sent Sir E. Hilton Young to the House of Lords and filled his place at the Ministry of Health by Sir Kingsley Wood. Nine years ago Sir Hilton was nominated by the Crown as the first layman ever to sit on the General Medical Council, and for more than four years he placed his many gifts and attainments at its disposal. It is on record that in asking for more Crown nominations to the Council a Member of the House of Commons took it for granted that "one layman could not possible fill his rôle adequately if alone amongst 37 other medical members." Sir Hilton filled his rôle at the Council's board, and for three years as a member of the executive, in a way which did much both to increase the confidence of the public in the General Medical Council and to procure the respect of his medical colleagues. He resigned from the Council on becoming Minister of Health and this three and a half years' tenure of

this office have witnessed a revolution in public health practice, for a new standard of housing has been set up providing for the separation of the sexes over ten years of age and space for the increasing family, while a date has been fixed after which it will become an offence for either landlord or occupier to overcrowd a house in excess of its legal standard. By arduous tours through the country Sir Hilton came personally into contact with the medical officers of health on whom the execution of this programme will so largely rest, and now it will fall to his successor to see the scheme for abolishing slums put through. But in the House of Lords Sir Hilton will find many opportunities of using his great knowledge of public health and his interest in the lives of the people.

Sir Kingsley Wood, who leaves the post office to be Minister of Health, is no stranger to the department, for he served as Parliamentary Secretary some years ago. He has another practical qualification for the insurance side of the work, since he was one of the original members of the London Insurance Committee, and became its chairman for the year 1917–18, receiving the honour of knighthood during his year of office. Sir Kingsley is a solicitor and his firm has for many years been associated with one of the largest industrial approved societies. In the early days of the scheme he paid special attention to the problem of the adequacy of the medical service for the insured population in London, and sanatorium benefit, which at that time was administered by insurance committees, also received his intensive consideration.

SPEED LIMIT FOR DOCTOR'S CAR USED AS AMBULANCE

MEDICAL practitioners, along with all other motorists, are being summoned for exceeding the speed limit of 30 miles per hour imposed by the Road Traffic Act of last year. A doctor who said he was hurrying to an urgent maternity case found the magistrates in a lenient mood. Where a patient is being taken in emergency to surgery or hospital by motor-car, there is a possible exemption under Section 3 of the Act. In somewhat verbose language the section declares that the provisions of any enactment, statutory rule or order which impose a speed limit shall not apply to any vehicle on an occasion when it is being used for fire brigade, ambulance, or police purposes, if the observance of those provisions would be likely to hinder the use of the vehicle for the purpose for which it is being used on that occasion. Last April a doctor arranged to drive a patient of hers to a maternity home as soon as necessary. She was sent for one day and, as soon as she saw the patient, she realised it was an urgent case. She had to drive 12 miles to the home, and in traversing a built-up area she was said to have travelled between 38 and 40 miles an hour over six-tenths of a mile. For this the Tunbridge Wells magistrates fined her £2. She appealed to the West Kent Appeals Committee—i.e., to quarter sessions. Police witnesses said that the saving of time by the excess speed was only one minute. On the other side, it was proved that the patient's medical adviser had pronounced the case to be one of great urgency, that the patient had to be assisted from the car on arrival, and that the child was born within an hour of the mother being admitted to the home. In the mother's condition, it was said, any further time in the car would have precipitated matters. The Appeals Committee allowed the appeal and, although the decision of quarter sessions upon a particular set of facts is not as weighty as a ruling by the High Court, the result is a useful precedent. To come within the exemption of Section 3 the car must be "used for ambulance purposes," and the case must be one where reduction of speed to 30 miles would hinder those purposes. The best rate of speed to minimise the jolting of an injured patient is a question which the magistrates might need expert evidence to decide.

THE BLINDING FILARIA IN EAST AFRICA

ONCHOCERCIASIS has appeared in East Africa and there is little doubt that it is taking the blinding form whose devastating effects in the Belgian Congo and the Sudan were noted in our issue of June 1st. P. G. Preston has reported [1] from Kenya onchocerca nodules, steadily increasing for two years and proved to be such by microscopic examination after excision. They were taken from a man who, except for service as a porter in the King's African Rifles near Kilimanjaro during the late war, had always lived in the Kisii Reserve. From time to time he had suffered from pain as if a knife were thrust behind the eyes, with periodic blurring of the vision, which latterly seems to have become permanent. Preston believes this to have been the first case of onchocerciasis microscopically identified in Kenya. Further, A. J. Boase [2] reports from Uganda the case of a Muganda with ciliary congestion, posterior synechiæ, and a hazy cornea through which the fundus could not be seen; the corneal microscope revealed microfilariæ judged to be a third of a millimetre long. The man had *Mf. perstans* in the blood, but the size of the corneal microfilariæ was that of the larvæ of *Onchocerca volvulus* and not of *Acanthocheilonema perstans*, while the ocular condition corresponded to that produced by onchocerca. There is thus grave reason to fear that East Africa is threatened with an encroachment by the blinding filaria.

LEGACIES AND GIFTS FROM PATIENTS

"No practitioner is safe against becoming involved in costly litigation arising out of his practice" is a well-worn sentence in the report of the Council to the general meeting, held last Wednesday, of the members of the London and Counties Medical Protection Society. It is a statement which hardly needs making to members of such a society, but one to which heed should at once be given by those—now happily few—who have not joined one of the societies formed to protect their interests. The report contains much to show how watchful is the council of this society over the old recurring difficulties of professional life and the new difficulties which are constantly arising. A fortnight ago (p. 1296) we dealt with the claims against a deceased practitioner's estate opened up by a legislative Act of 1934. The report contains also a timely reference to the legal difficulties which may arise where a doctor accepts a gift from a patient. Their confidential relationship sets up a legal presumption of undue influence unless it can be shown that the patient received independent advice. Another point of the general law appears to be imperfectly appreciated. If a medical man is asked to witness the signature of a patient's will, his attestation makes void any legacy which the patient may have left to him. The law insists that, if the attesting witness (or his or her wife or husband) is the sole beneficiary under a will, then the will is invalidated altogether. If the witness (or his or her wife or husband) is only one of the beneficiaries under a will, then the will stands

[1] Jour. Trop. Med. and Hyg., 1935, xxxviii., 81.
[2] East African Med. Jour., 1935, xi., 326.

valid except as regards the benefit intended for the witness (or his or her wife or husband) while the latter benefit becomes, in the words of section 15 of the Wills Act of 1837, "utterly null and void." It is believed that these rules of law are not taught to medical students, and there is much value in the suggestion that such matters should be included, with other legal principles affecting professional relationships, in the curriculum of the medical schools. A practitioner is placed in an invidious position if he is called upon to rebut the legal presumption of "undue influence" when the executors of a deceased patient, in the course of their duty to the patient's estate, are obliged to challenge some gift made by the patient to his medical attendant several years earlier.

THE THYROID AND THE CIRCULATION

A BROAD survey of the contrasting circulatory changes in hyper- and hypothyroid states has been undertaken by F. Kisch.[1] In describing the tachycardia, increased minute volume of cardiac output, and increased speed of the circulation which are found in thyrotoxicosis, he is on ground where there is general agreement. But his account of the way in which the altered thyroid secretion brings about these changes seems to leave solid earth behind. After quoting experiments in support of the theory that the thyroid hormone exerts its influence on the heart only through the cardiac nerves, he suggests that the stimulus originates in the action of the thyroid secretion on the vegetative centres in the mid-brain. No definite explanation is offered for the occurrence of auricular fibrillation and flutter, but it is thought they may be due to "severe damage to the cardiac musculature." Against this is the strong objection that normal rhythm often returns within a day or two of thyroidectomy, which makes it seem that the change in the muscle is functional and not (as Kisch's phrase implies) organic. The latter part of the paper reviews the changes in the circulation in myxœdema. The statement that this condition occasionally causes gross circulatory failure has been seriously questioned since the introduction of complete thyroidectomy as a method of treating intractable heart failure; the artificial hypothyroidism thus produced has been shown to have a favourable effect on the symptoms of gross heart failure—even despite the further slowing of the circulation-rate and increase in the size of the heart.

MEDICINE IN BERKSHIRE

IN a modest preface the editors of the third volume of the *Royal Berkshire Hospital Reports* (10*s*. 6*d*.) explain that their aim is to record important cases observed in the hospital and to give to doctors in the area it serves particulars of the facilities offered for diagnosis or treatment. The outcome of their efforts is, however, of much more than local import, for not only are some of the individual cases of rare interest but the critical surveys of certain diseases—notably a review of 56 cases of anæmia admitted to the hospital between 1928 and 1934, by Dr. J. Mills and Dr. R. Herring, and a study of 71 consecutive operations on the thyroid gland by Mr. J. L. Joyce and Mr. F. H. Aitken Walker—chronicle experience which should find a permanent place in the literature of the subjects. The complete tables supplied by Mills and Herring, giving details of blood picture in each case at various dates as well as results of examination for biliary function, achlorhydria, achylia, and C.N.S. symptoms, provide records of great value in relation to the form of treatment given and the reticulocyte response. The general conclusions reached by these authors from their material were set out in their communication to THE LANCET three months ago; they emphasise (1) the advantages of the intramuscular route for liver therapy over the oral route and (2) the necessity for continuous treatment after recovery. The advice sometimes given "to have a rest from liver" is strongly condemned, and the desirability of the control of treatment by regular blood examinations is made clear. Mr. Joyce reports that of the 45 toxic cases in this goitre series 32 have been able to return to a normal active life, but the series shows an operative mortality (5 deaths) that the authors consider capable of improvement by earlier operation and closer coöperation between practitioner, physician, and surgeon. There are at the Royal Berkshire Hospital no facilities for estimation of basal metabolic rates and the authors hint at the desirability of the provision of these facilities. It seems justifiable to ask for them in a hospital which has installed such modern equipment as a deep X ray therapy plant and a clinic for the treatment of squint. The members of the staff in charge of these developments are respectively Dr. Paul Cave and Mr. G. T. Willoughby Cashell, each of whom contributes an article to the *Reports* discussing the scope of their work at the hospital. Other general articles include a review of some cardiac cases presenting features of interest, by Dr. Gordon Lambert; a discussion of the causes of loss of consciousness following acute head injury and their relation to the treatment of this condition, by Mr. R. Q. Parkes; a description, with comments, of four cases of brain abscess of otitic origin, by Mr. Leslie Powell; and a short analysis of the literature on peptic ulcer of Meckel's diverticulum, with two new cases, by Mr. Joyce. Of the individual cases the most remarkable is that described by the chief editor of the *Reports*, Dr. H. S. Le Marquand, with a pathological report by Dr. Dorothy Russell. In this case, on which we shall have occasion to comment, precocious puberty in a boy was associated with a tumour in the floor of the third ventricle.

That these *Reports* do not reflect an exceptionally fertile period but rather provide a fair sample of the normal activities of the hospital is clear to those who recall the quality of the work published in previous volumes (1932 and 1933). It is unusual that such good use is made of the clinical and pathological material available at a hospital not attached to a teaching school; it is even more rare to find team-work so well established as to enable its results to be collected and produced periodically with well-chosen illustrations in handy volumes.

Sir Frederick Banting, F.R.S., will deliver an informal address on the History of Insulin at the British Postgraduate Medical School, Ducane-road, London, W.12, on Thursday, June 20th, at 2 P.M. Medical practitioners are invited.

THE council of the Royal Society of Medicine on May 21st decided to make the first award of the Hickman medal to Dr. Wesley Bourne, anæsthetist to the Royal Victoria Hospital, Montreal, and lecturer in pharmacology at McGill University. Dr. Bourne paid visits to this country in 1926 and 1932, and has contributed to our columns pioneer observations on vinyl ether and cyclopropane anæsthesia.

[1] Wien. Arch. f. inn. Med., February, 1935, p. 297.

PROGNOSIS

A Series of Signed Articles contributed by invitation

LVI.—PROGNOSIS OF SIMPLE MOLES AND MELANOTIC SARCOMA

THIS article will attempt an answer to the following questions :—

1. What is the risk that a congenital pigmented mole may become malignant ?
2. What are the factors that may increase the risk ?
3. What is the outlook in untreated melanotic sarcoma ?
4. What are the chances of cure in melanotic sarcoma ?

The Simple Mole

Risk of malignancy.—There are few people who do not carry about from birth and through life one or more pigmented moles. On the other hand, melanotic sarcoma is a rare disease and so is squamous-celled carcinoma starting in a mole. It follows that the risk of malignancy in a simple mole is a small one. The chances against it are at least some thousands to one.

Factors favouring the onset of malignancy.—Chronic irritation, more rarely a single acute trauma, and unwise irritant treatment are the main causes of malignancy in moles. Moles subject by their situation to constant friction—for example, upon the neck where the collar rubs them, near the anus and upon the inner side of the thigh, or at the waist in women—are liable to malignancy. Undue exposure to sunlight may produce either melanotic sarcoma or epithelioma in a mole, and consequently these conditions are commoner in Australia than in this country. Queensland farmers have given up keeping white cattle because of their liability to cancer of the skin. In parti-coloured animals the cancer always develops on the white or unprotected portion of the hide.

Signs of threatened malignancy.—The signs which indicate the onset of malignancy in a mole are bleeding, increase of size, increase of prominence above the general surface, enlargement of glands, and they are unaccompanied by pain. Melanotic sarcoma is so rare that few men in practice have much experience of it. It follows that even if a patient with an active and threatening mole does seek advice early, he is liable to be met by reassurances, or the mole may be treated by the application of a caustic, an almost infallible method of inducing malignancy in a previously innocent mole.

Treatment.—Moles which are showing the signs of activity I have mentioned, or which are situated in regions where they are liable to irritation—e.g., the inner side of the thigh, the anal region, or the neck at the level of the collar—should not be merely watched, or irritated by ineffective treatment. They should be cut out with a small margin of ¼-in. of healthy skin and the incision sutured. The removal should expose the subcutaneous fat. The tissue removed should be microscopically examined in case by any chance malignancy has been overlooked, for it has to be remembered that the onset of malignancy in a mole is sometimes unaccompanied for a time by any striking alteration in the appearance of the mole. This is one of the difficulties of the subject, and should not be overlooked.

The manufacture of melanotic sarcoma from a mole by the application of a caustic is often due to the patient's initiative, but it must be confessed that more often his medical adviser is responsible. It cannot be stated too strongly that under no circumstances should a caustic be applied to a mole. The practice is not extinct, for recently I heard of a case in which a patient had undergone this treatment for a group of three moles. Other irritant forms of treatment such as the application of carbon-dioxide snow are almost equally dangerous, and so too is partial or careless excision or ligature. It is questionable whether even for the smallest mole diathermy or electrolysis is advisable. These agents are only safe if complete destruction at one sitting can be guaranteed. Methods of treatment of moles by caustics, partial excision, or ligature amount to experiments in the conversion of innocent into malignant tumours.

Melanotic Sarcoma

The outlook in untreated cases.—It is customary to speak of melanotic sarcoma as the most malignant of known tumours. It is certainly not the most rapidly fatal. The average duration of a case of melanotic sarcoma is about three years, and up to within a few months of the end the patient remains free from pain and able to get about. The factors producing disability are ulceration and hæmorrhage from the primary growth and its secondary deposits in the skin, great enlargement of the liver, and œdema and lymphatic weeping of a limb, the lymphatic vessels of which have been blocked by permeation. The spread of the disease takes place, mainly and at first exclusively, through the lymphatics, and the glands accordingly soon become enlarged. Blood-dissemination is a late event and may be absent nearly to the end. Accordingly melanuria is a late symptom.

Frequency.—Though melanotic sarcoma is fortunately a rare disease, it is not on that account to be neglected. I am indebted to Dr. Robert Greenough for the information that in the ten years 1917–26 inclusive 64 specimens of melanotic sarcoma were examined by the Diagnosis Service of the Massachusetts Department of Public Health. The population from which these specimens were derived numbers between three and four millions. Probably in only a minority of cases was a specimen sent for report, and rare though the disease is, the figures show that it deserves more careful attention from the profession than it has hitherto received.

Treatment.—Melanotic sarcoma has the reputation of being an inevitably fatal disease, for which surgical treatment offers at best a forlorn hope. There are various reasons for this pessimistic attitude. It is still generally thought that the growth obtains early access to the blood stream and spreads mainly if not entirely by the blood-vessels. If this were true, operative treatment is obviously useless, but as I showed many years ago, blood dissemination is a terminal, not an early event. The early stages of dissemination are by permeation of the lymphatic system around the primary growth, combined with lymphatic embolism of the corresponding set of glands. These glands form a barrier or filter which for some time arrests further the spread of the disease. Even at the time of death the distribution of the secondary deposits may be such as to show that they all arose from local centrifugal lymphatic spread. For instance, in a melanotic sarcoma of the hand the secondary growths were found only in the corresponding limb and the corresponding lung, all the rest of the body

being free of the disease. All the evidence shows that the spread of the disease is at first local only, and that it should be amenable to surgical treatment.

Fifty years ago it was, I believe, quite usual to excise a carcinoma from the breast without removing the whole breast. The recurrence-rate at that time approached 100 per cent. Even as late as 1887 Mitchell Banks met with little support when he advocated the removal of the whole breast and the routine removal of the axillary glands. Since that time, as the result of pathological researches into the mode of spread of the disease, the operation for breast cancer has been gradually rationalised, and though many cases still reach the surgeon far too late, the results of treatment have improved enormously. At the present time 56 per cent. of cases treated on scientific lines remain free from recurrence three years after operation.

In respect to melanotic sarcoma, there is a very different and a very depressing story to tell. Even when melanotic sarcoma is recognised, it is often considered that a mere limited excision of the visible disease will meet the case, and no thought is given to its spread by permeation in the deep fascia, or to the probability that the lymphatic glands even if not enlarged may already be infected. The methods used are similar to those employed in breast cancer forty years ago. Since both diseases spread by early embolic invasion of the lymphatic glands and centrifugal permeation of the deep fascia, it is not surprising that the surgical results of excising melanotic sarcoma to-day approximate to those obtained in breast cancer in the primitive period, that is to say, the recurrence-rate verges on 100 per cent. Neither is it surprising that melanotic sarcoma has the reputation of being perhaps the most malignant of tumours.

In these matters surgical methods have not kept pace with pathological knowledge. The mode of spread of melanotic sarcoma has been accurately studied and an operation which fulfils the requirements of pathology is surgically possible. It is necessarily a severe operation but not a dangerous one. The requirements are the removal of :—

1. A circle of skin at least 2 inches in diameter centred on the primary growth.
2. A circle of deep fascia 4 to 6 inches in diameter centred on the primary growth.
3. An area of muscle immediately beneath the primary growth.
4. A band of deep fascia carrying the trunk lymphatics from the primary growth to the nearest glands.
5. The set of lymphatic glands immediately above the primary growth, together with a circular area of deep fascia surrounding them, and likely to be permeated.
6. The set of glands immediately above the first set of glands, if these latter are obviously enlarged.
7. All these parts in one piece.

In pathological language the object of the operation is the removal intact of the permeated area of the lymphatic system, of the embolically invaded glands, and of the trunk lymphatics connecting them.

Results.—If melanotic sarcoma were treated on these lines there is no reason why our results should not be at least as good as those secured in breast cancer. When once blood dissemination has begun, I admit that no surgical operation is likely to be successful. But blood dissemination is a very late event, and in some cases of the disease it is almost absent nearly to the end.

I cannot produce much direct evidence that a scientifically planned operation for melanotic sarcoma will cure the disease, for rarely in my career have I had its treatment from the beginning. With about two exceptions all the cases seen by me have been recurrent cases in which a local excision or cauterisation of the primary growth has been followed by local recurrence and gland enlargement. Eight or ten cases in all, apart from hopelessly inoperable ones, have thus come under my care. Unpromising as was the material, I have had among these cases three successes. One of them died from cardiac disease without recurrence 18 years after operation, another was known to be well 3½ years after operation, when she was lost sight of, and a third patient remains well to-day.

Melanotic sarcoma has not the great importance of the commoner forms of malignant disease. But that is no reason why its treatment should still be conducted on the ineffective lines handed down from our forefathers and by methods which are relics of barbarism.

SAMPSON HANDLEY, M.S. Lond., F.R.C.S. Eng.,
Senior Surgeon to the Middlesex Hospital.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. H. H. Babington to *Pembroke* for R.N.B.

Surg. Lt.-Comdrs. E. E. Malone to *Victory* for R.N.B.; J. J. Keevil to *Royal Sovereign*, addl., and vice Brown, temp.; and D. R. F. Bertram to *Pembroke* for R.N.B.

Surg. Lts. B. S. Lewis and F. W. Chippindale to *Winchelsea*, L. G. Yendoll to *Victory* for R.N.B., and B. S. Lewis to *Cricket*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. C. Mason promoted to Surg. Lt.-Comdr.

Surg. Lts. J. L. Cox transferred from List 2 of the Severn Division to List 2 of the London Division, and A. W. Kendall to *Pembroke* for R.N. Hospital, Chatham.

E. J. S. Woolley entered as Proby. Surg. Lt. and attached to List 2 of the London Division; and R. E. King entered as Proby. Surg. Sub-Lt. and attached to List 2 of the Clyde Division.

ROYAL ARMY MEDICAL CORPS

Short Serv. Commissions.—The undermentioned Lts. to be Capts.: W. M. E. Anderson and H. B. Wright.

The undermentioned Lts. to be Capts.: R. H. Foster, F. E. Buckland, J. H. J. Crosse, D. T. Swift, J. Boyle, E. H. P. Lassen, I. Buchanan, A. L. Pennefather, J. S. Ruddell, and W. T. Bermingham.

REGULAR ARMY RESERVE OF OFFICERS

Maj. A. M. Benett, having attained the age limit of liability to recall, ceases to belong to the Res. of Offr.

TERRITORIAL ARMY

Capt. G. A. Macdonald resigns his commn.

C. E. Moorhead to be Lt.

ROYAL AIR FORCE

Flight Lt. C. J. S. O'Malley is promoted to the rank of Squadron Leader.

AUXILIARY AIR FORCE

No. 607 (County of Durham) (Bomber) Squadron: Flying Offr. D. A. Smith is promoted to the rank of Flight Lt.

INDIAN MEDICAL SERVICE

Majs. to be Lt.-Cols.: P. R. Vakil, J. L. D. Yule, M. L. Dhawan, and B. S. Dhondy.

Capt. K. R. Sahgal to be Maj.

The undermentioned officers have vacated appts. in India :—

A.D.M.S.—Lt.-Col. F. Worthington, D.S.O., O.B.E., R.A.M.C.

D.A.D.M.S.—Lt.-Col. A. C. Macrae, I.M.S.

D.A.D.H.—Maj. W. W. S. Sharpe, R.A.M.C.

The undermentioned appts. have been made in India :—

D.A.D.M.S.—Lt.-Col. B. C. Ashton, I.M.S., and Maj. T. J. L. Thompson, M.C., R.A.M.C.

D.A.D.H.—Maj. T. Young, R.A.M.C.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) H. J. J. Fordham retires.

SPECIAL ARTICLES

GENERAL MEDICAL COUNCIL

REPORT OF THE CURRICULUM COMMITTEE

THE Curriculum Committee of the General Medical Council was appointed in June, 1934, to consider information and proposals received by the Council in respect of the revision of the curriculum. The members of the Committee were Dr. H. L. Tidy (chairman), Dr. J. B. Leathes, F.R.S., Prof. J. S. B. Stopford, F.R.S., Sir George Newman, Dr. H. G. Dain, Mr. L. P. Gamgee, F.R.C.S., Prof. R. J. Johnstone, F.R.C.S., with the president as an ex-officio member. The report, considered as an interim document, was presented to the Council on May 31st, and it was resolved that it should be circulated to the licensing bodies and the deans of the medical schools for their observations, when the whole matter would be further considered at the November session.

A full abstract of the recommendations forming the report follows with the resolutions given verbatim :—

I.—Admission and Registration

Before admission to the medical curriculum proper the present Resolutions of the Council require that a student shall have passed an examination in general education and an examination in preliminary scientific subjects, and should be registered as a medical student. The curriculum proper may be taken in general as commencing with the study of anatomy and physiology. Registration as a medical student by the Council takes place at this point, but not under the age of 17 years. The average age at registration is now about 18 years, and the Committee are in agreement with the opinion that the medical curriculum proper should not be entered upon before that age.

Registration of medical students is not mentioned in any of the Medical Acts, and could only be enforced by the Council if Parliamentary powers or general consent were obtained, but the Committee recommend that all the licensing bodies should be invited to decide to raise the age of admission to the curriculum proper to 18 years, and also to require registration.

GENERAL EDUCATION

The present policy of the Council is that the standard of general education should be at least equal to that of entry into other learned professions, and not below that of the matriculation examination of universities. The Committee are in agreement with the widely expressed desire that the general education required of the student should not cease at too early an age, and also that the present standard should be raised, and not only by the addition of further subjects.

It would be difficult to formulate a scheme capable of general application. Many boys and girls now take the school certificate about the age of 16 years, and having then decided to enter the medical profession, complete their study of the preliminary scientific subjects while still at school. They are thus in surroundings where they can continue the study of other subjects, and, we hope and believe, frequently do so. In such conditions there would be no great difficulty in arranging that a subsequent examination should be taken in one or two additional subjects of general education at a fairly high standard. Such an arrangement cannot, however, apply to all students, since the conditions under which the examinations in general education and preliminary scientific subjects are passed vary considerably under different licensing bodies and with individual students. The Committee are of opinion that if the principle be adopted, the licensing bodies will themselves most appropriately find the method of applying it to their own requirements. At the pre-registration examination, which at present consists of scientific subjects, one or two subjects of general education at an approved standard should also be taken.

PRELIMINARY SCIENTIFIC SUBJECTS

Many secondary schools are now well equipped for teaching the preliminary scientific subjects, especially chemistry and physics. As great expense has been incurred as a result of the Council's Resolutions of 1922, there would be hardships if any change in principle in regard to chemistry, physics, and biology should be made. The position varies greatly in different places, and some medical schools must continue to teach these subjects, and many prefer to do so.

Chemistry.—Much of inorganic chemistry possesses no special educational merit and is not of particular value in the medical sciences ; the omission of such matter would enable both inorganic and organic chemistry to be taken in this elementary course and examination, and the Committee therefore recommend that the subject of chemistry should include both inorganic and organic chemistry. A student would thus pass about the age of 18 an examination which would satisfy the requirements of the Council in chemistry and physics, and enable him to enter on the curriculum proper without having before him any further examination in these subjects.

Biology at present is not commonly taught in secondary schools, even in many of those satisfactorily equipped for the teaching of chemistry and physics, although considerable advance is in progress as the result of the Council's Resolutions. They hold that knowledge of this subject is a valuable introduction to anatomy and physiology, and that instruction in biology should not cease at the end of the pre-registration period. The Committee recommend that it should be permissible, as at present, for the course of instruction to commence before, but that the examination should be taken after registration. They recommend that it should be regarded as the intention of the Council that instruction should continue into the period of the Professional Scientific Subjects, and that the examination should not be taken immediately after registration. Botany should be considered as included in biology.

II.—Medical Curriculum Proper

The subjects of the curriculum proper fall into two main groups and periods of study, the Professional Scientific Subjects occupying the first two years, and the Clinical Subjects occupying the final three years. The definite " block " which exists at present between these two periods has evoked numerous criticisms. A study of the Council's Resolutions and the Additional Resolutions shows that it was the intention that there should be an examinational block at this point, the object being that the student should not pass to the three clinical years until he had proved his knowledge in the Professional Scientific Subjects. Of this type of block there is no substantial criticism, and the Committee are of opinion that it should be maintained. It was plainly not the intention of the Council that the block should be concerned with instruction. The Resolutions and Additional Resolutions were framed so as to avoid this by providing for instruction in applied anatomy and physiology during the clinical years. But it is clear that such provisions

are insufficient to achieve adequate correlation of the two groups. The student has no introduction to clinical studies in the first two years, and having passed the examination at this stage, he may hear little more of anatomy and physiology till he meets anatomy in the final surgical examination. There may be no effective correlation of the two groups of subjects and the student, having passed the examination, may forget details which should form the foundations of clinical teaching and knowledge.

The Committee recommend, first, that an introduction to clinical subjects should take place during the period of study of the Professional Scientific Subjects, and secondly, that organised instruction in applied anatomy and physiology should be continued during the Period of Clinical Studies.

A.—Period of Study for the Professional Scientific Subjects

The Committee endorse the common view that the total duration of the study of the Professional Scientific Subjects should remain at two academic years. But they hold the Council should approach the licensing bodies with a view to an increase of the length of the terms of study.

[The various subjects are then referred to separately.]

It was resolved that instruction in *biology* should continue during these two years, an examination to be held at some appreciable interval after registration, but that no special instruction or examination in *organic chemistry* would be required if it has been duly dealt with as a pre-registration subject.

Anatomy.—The Committee refer to criticisms, general and special, on the teaching of anatomy which suggest that the subject instead of being taught on a vocational basis is sometimes conducted on the assumption that all students are likely to become professional anatomists. These criticisms the Committee did not find substantiated with regard to all the teaching schools, and held that the matter was one for the internal administration of the various teaching bodies.

Physiology.—The criticisms of the teaching of physiology were found to be generally on the same lines as those on the teaching of *anatomy*, but less emphatic. Some critics hold that too much attention is paid to branches of physiology which are of little vocational value, while others suggest that modern physiological developments of practical importance are not sufficiently promptly incorporated in the teaching. The Committee are of opinion that physiology and clinical medicine should be brought into closer union by continuing the instruction in physiology into the clinical years and by the association of clinical teachers with the teaching of physiology.

The Committee accordingly recommend that the resolution with regard to anatomy and physiology should read as follows :—

"*Human Anatomy and Human Physiology.* These courses should include : (1) dissection of the entire cadaver ; (2) anatomy of the living body ; (3) elements of human embryology ; (4) histology, cytology, and the principles of genetics ; (5) the principles of general physiology, the chemistry and physics of bodily functions studied as far as possible in the human subject ; (6) elements of normal psychology."

The Committee further recommend that the following resolution should be included in the resolutions applicable to the teaching both of medicine and of surgery in the Period of Clinical Studies :—

"Regular instruction and demonstrations in applied anatomy and physiology during the Period of Clinical Studies, to be carried out by the teachers of anatomy and physiology and the clinical teachers jointly."

INTRODUCTION TO THE CLINICAL SUBJECTS

The Committee accept the view that the introduction to the Clinical Subjects should take place during this period, with the object of associating them with the Scientific Subjects as early and as closely as possible, but at the same time they consider that the efficient teaching of the Scientific Subjects must be properly safeguarded. Consequently they recommend that the introductory Clinical Subjects should be taught throughout, but not before, the second year, and that the amount of time allotted to them should not exceed one-third of the total time available in that year.

With these essential provisos, they recommend that the following subjects should form part of the curriculum for this period :—

(1) Elements of the methods of clinical examination, including physical signs, the use of stethoscope, ophthalmoscope, &c., and the examination of body fluids (with demonstrations on living subjects, normal and abnormal) ; (2) an introduction to general pathology ; and (3) to pharmacology.

The Committee accept the view that a student should not pass to Clinical Studies until he has satisfied the examiners in the subjects of the first two years.

B.—Period of Clinical Studies

The clinical period should begin in the third year of the curriculum and occupy the third, fourth, and fifth years and following the foregoing recommendations the student should already possess some knowledge of elementary pathology and bacteriology.

[The Committee refer to certain general criticisms before passing to individual subjects.]

1. *Full Use of Time Available.*—The Committee demur to the length of the long vacation and other holidays, and hold that during the three calendar years of the clinical period instruction should be continuous with reasonable breaks and cessation of systematic lectures during the academic holidays. They recognise that all the licensing bodies cannot conform exactly to one rule, and suggest that the total period of time should be from 33 to 36 months.

2. *Teaching of Anatomy and Physiology.*—Regular instruction in applied anatomy and physiology should be carried on during this period jointly by teachers of these subjects and of the clinical subjects.

3. *Closer Contact of the Students with Patients.*—The Committee are of opinion that this could be best secured by a period of residence in hospital. In those teaching schools in which such residence is available at present, it is found that the students can be allowed valuable responsibility under satisfactory supervision. They recommend that there should be a period of not less than one month's residence in hospital, both in medicine and in surgery, and that the relevant resolution should read :—

"A continuous period of not less than one month in residence in hospital or conveniently nearby, attached to medical (surgical) wards."

Together with the two months' residence as obstetrical pupil, this would ensure that every student would spend four months in residence. He would thus obtain closer contact with patients, more continuous observation, and more practical experience in responsibility previous to qualification.

4. *Minor Illnesses.*—All students should obtain instruction in minor illnesses and in early stages of disease. The Committee recommend the following

resolution, which is at present the requirement of many medical schools :—

"Regular attendance in a medical (surgical) out-patient or equivalent department for a period of three months."

They also recommend the following resolution in surgery :—

"Practical instruction in minor operative surgery on the living."

5. and 6. *Systematic Lectures and Methods of Clinical Teaching.*— The Committee formulate no definite resolutions on these subjects, leaving such matters to the discretion of the individual schools.

SUBJECTS IN THE PERIOD OF CLINICAL STUDIES

The Committee make the following recommendations under :—

1. MEDICINE

Clinical Clerkship.—It is recommended that the resolution should be altered to read : "A medical clinical clerkship in the hospital wards for a period of six months."

Disease in Infancy and Childhood.—The Committee accept the view that every student should have practical acquaintance with this subject, and recommend as a resolution : "A clinical clerkship for a period of not less than one month in a children's ward or hospital." It is found that the time can be provided without interference with other duties in the six months allotted to midwifery, infant hygiene, and diseases of women.

Methods of Treatment.—Knowledge of certain methods of treatment which are not included in the present resolutions is essential, and the Committee recommend the addition of the following resolution : "Instruction in methods of treatment, including (*a*) dietetics ; (*b*) therapeutics and prescribing ; (*c*) physiotherapy ; (*d*) principles of nursing."

Special Subjects.—The Committee have carefully considered the criticisms of the teaching of those branches of medicine which are commonly referred to as Special Subjects, and they agree that such teaching is sometimes unnecessarily detailed. At the same time it is essential that students should be reasonably familiar with the principles of these branches. They recommend that the important subject of (1) child welfare should be added to those at present required, and they further recommend the addition of (2) psychology, and (3) radiology in its application to medicine.

The Committee recommend that the following should be added to the resolutions in this section : "The instruction in these branches of medicine should be directed to the attainment of such knowledge as to ensure familiarity with common conditions, their recognition and treatment, and the indications for consultation."

2. SURGERY

Clinical Dressership.—It is recommended that the resolution should be altered to "A surgical dressership in the hospital wards for a period of six months."

The Committee agree with the opinion that students during the period of dressership spend time unprofitably in the operating theatre. They recommend the addition of the following words as a note on the foregoing resolution : "During his period of surgical dressership a student should spend the greater part of his time at the bedside and in the out-patient department ; and he should not be required to attend in the operating theatre unnecessarily."

Practical Instruction in Surgical Methods.—The Committee recommend that "physiotherapy" be substituted for "mechanotherapeutics" in this resolution.

They also recommend that resolutions should be adopted in surgery, as in medicine, with reference to a period of residence in hospital, a period of instruction in the out-patient department, and the teaching of special subjects.

To the special branches of surgery they recommend the addition of "disease in infancy and childhood," "radiology in its application to surgery," and "dental diseases."

3. MIDWIFERY, INFANT HYGIENE, AND DISEASES OF WOMEN

This section of the Resolutions has recently been carefully revised by the Council. Criticisms are in the main favourable, and the Committee consider that, apart from the insertion of provision for instruction in postnatal as well as antenatal care, only minor alterations are necessary.

4. PATHOLOGY

Advances in pathology have brought it continuously into closer touch with clinical medicine. The Committee are of opinion that this aspect should be more strongly emphasised than in the present resolutions.

They recommend that the resolution should be as follows : "Pathology and bacteriology. Courses of instruction throughout the period of clinical studies in (1) general and special pathology and morbid anatomy ; (2) clinical and chemical pathology ; (3) general and clinical bacteriology and immunology."

The Committee have given careful consideration to the question of attendance at autopsies. It has been suggested that a certain number of attendances should be required at the commencement of the Clinical Period, and a further number towards its termination, but the Committee consider that it would be difficult for some medical schools to comply with such a requirement. Further, they are of opinion that students attend many autopsies in addition to those officially required. Consequently the Committee do not recommend alteration of the present requirement.

5. PHARMACOLOGY

The Committee recommend that the present resolution should be altered to read : "A course in pharmacology and materia medica, including practical pharmacy."

RESIDENT HOSPITAL APPOINTMENTS

The methods suggested for providing the necessary time fall into two main categories :—

(*a*) That the period should be subsequent to the completion of the five years' curriculum. The Council have no power to make any requirements subsequent to the passing of the final, or qualifying, examinations. Further, the Committee are of opinion that there are no substantial grounds for lengthening the present period before a student can become a fully qualified registrable medical practitioner.

(*b*) That a period of six to nine months in the final clinical year should be allotted to such appointments. The Committee are of opinion that no such time is available within the five years' curriculum. The appropriation of several months for such a purpose would seriously diminish the period now regarded as a minimum for fulfilling the present requirements of the Council.

If the proposed resolutions are accepted, every student will spend four months in residence in hospital and the Committee believe that this will provide the student with valuable experience of the character desired.

ADDITIONAL RESOLUTIONS

The Committee have considered the criticisms that the present resolutions contain no reference to instruction in the measures by which normal health may be maintained. They recommend that the substance of the present additional resolution (*a*) be incorporated in the body of the Resolutions, under the general heading "Medical Curriculum," by the insertion of the following paragraph :—

"Throughout the whole period of study the attention of the student should be directed by his teachers (*a*) to the importance of the measures by which Normal Health may be maintained, and (*b*) to the principles and practice of the Prevention of Disease."

INSTRUCTION IN LEGAL AND ETHICAL SUBJECTS

The Committee recommend with regard to this that instruction should be given during the later stages of the period of Clinical Studies by some person having practical knowledge of ethics, and of the statutory obligations of registered medical practitioners under the National Health Insurance Act and other Acts of Parliament.

In this instruction attention should be called to all Notices of these subjects issued by the General Medical Council.

The Resolutions

The following are the resolutions, which commence with the statement that every medical student should, at the beginning of his studies, be registered in the Medical Students' Register as prescribed by the Council.

I.—Pre-registration Examinations

Before registration as a student or commencement of the medical curriculum proper every person shall be required to pass, in addition to an approved preliminary examination in general education, an examination or examinations conducted or recognised by one of the licensing bodies, and comprising the following subjects :—

1. *Physics* (theoretical and practical), the elementary mechanics of solids and fluids, the elements of heat, light, sound, electricity, and magnetism.

2. *Chemistry* (theoretical and practical), the elementary principles of the chemical combination of elements including carbon.

3. One or two subjects of *general education* at an approved standard.

II.—Medical Curriculum

With regard to the course of study and examinations which persons desirous of qualifying for the medical profession shall go through in order that they may become possessed of the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery, the Council recommend as follows, viz. :—

The period of professional study, between the date of registration as a medical student and the date of the final examination for any diploma which entitles its holder to be registered under the Medical Acts, should be a period of certified study during not less than five academic years.

The first two years should be devoted to the study of Professional Scientific Subjects with an introduction to Clinical Subjects. The last three years should be devoted to the study of the Clinical Subjects, together with the clinical application of the Professional Scientific Subjects.

Throughout the whole period of study, the attention of the student should be directed by his teachers (*a*) to the importance of the measures by which normal health may be maintained; and (*b*) to the principles and practice of the prevention of disease.

In every course of professional study, and in the examinations, the following subjects should be included :—

(A) PERIOD OF STUDY OF THE PROFESSIONAL SCIENTIFIC SUBJECTS

1. *Elements of General Biology.*—A course of instruction, including practical work, in the fundamental facts of vegetable and animal structure, life-history and function; and an introduction to the study of embryology. This course may commence in the pre-registration period.

2. *Human Anatomy and Human Physiology.*—These courses should include :—

(1) Dissection of the entire cadaver;
(2) Anatomy of the living body;
(3) Elements of human embryology;
(4) Histology, cytology, and the principles of genetics;
(5) The principles of general physiology, the chemistry and physics of bodily functions studied as far as possible in the human subject;
(6) Elements of normal psychology.

Instruction, illustrative of that given in anatomy and physiology and introductory to later studies, should be given in the second year in the following subjects, the amount of time to be allotted to them not to exceed one-third of the total time available in that year :—

3. *Elements of the Methods of Clinical Examination*, including physical signs, the use of the stethoscope, ophthalmoscope, &c., and the examination of body fluids (with demonstrations on living subjects, normal and abnormal).

4. *An Introduction to General Pathology and Bacteriology.*

5. *An Introduction to Pharmacology.*

Note.—It is recommended that students should not pass to the Period of Clinical Studies until they have satisfied the examiners in the subjects of the first and second years.

(B) PERIOD OF CLINICAL STUDIES

This period occupies the third, fourth, and fifth years of the medical curriculum proper. These should be calendar years, during which clinical instruction should be continuous. A minimum period of three years should in every case be given to clinical study in an approved hospital after the completion by the student of the professional examinations held at the close of the second year of the medical curriculum proper.

6. *Medicine*, including :—

(1) Systematic instruction in the principles and practice of medicine;
(2) A medical clinical clerkship in the hospital wards for a period of six months;
(3) A continuous period of not less than one month in residence in hospital or conveniently nearby, attached to medical wards;
(4) A clinical clerkship for a period of not less than one month in a children's ward or hospital;
(5) Regular attendance in a medical out-patient or equivalent department for a period of three months;
(6) Regular instruction and demonstrations in applied anatomy and physiology during the period of clinical studies, to be carried out by the teachers of anatomy and physiology and the clinical teachers jointly;
(7) Instruction in methods of treatment, including (*a*) dietetics, (*b*) therapeutics and prescribing, (*c*) physiotherapy, (*d*) principles of nursing;
(8) Instruction in the following branches of medicine : (*a*) disease in infancy and childhood, and child welfare, (*b*) acute infectious diseases, (*c*) tuberculosis, (*d*) psychology and mental diseases, (*e*) diseases of the skin, (*f*) radiology in its application to medicine, (*g*) theory and practice of vaccination.

Note.—The instruction in these branches of medicine should be directed to the attainment of such knowledge as to ensure familiarity with common conditions, their recognition and treatment, and the indications for consultation.

7. *Surgery*, including :—

(1) Systematic instruction in the principles and practice of surgery;
(2) A surgical dressership in the hospital wards for a period of six months;

Note.—During his period of surgical dressership a student should spend the greater part of his time at the bedside and in the out-patient department; and he should not be required to attend in the operating theatre unnecessarily.

(3) A continuous period of not less than one month in residence in hospital or conveniently nearby, attached to surgical wards;
(4) Regular attendance in a surgical out-patient or equivalent department for a period of three months;
(5) Practical instruction in surgical methods, including physiotherapy;
(6) Practical instruction in minor operative surgery on the living;

(7) Instruction in the administration of anæsthetics, the candidate being certified to have administered anæsthetics on at least ten occasions;

(8) A course of instruction in operative surgery;

(9) Regular instruction and demonstrations in applied anatomy and physiology during the period of clinical studies, to be carried out by the teachers of anatomy and physiology and the clinical teachers jointly;

(10) Instruction in the following branches of surgery: (*a*) disease in infancy and childhood, (*b*) diseases of the eye and principles of refraction, (*c*) diseases of the ear, nose, and throat, (*d*) radiology in its application to surgery, (*e*) venereal diseases, (*f*) orthopædics, (*g*) dental diseases.

Note.—The instruction in these branches of surgery should be directed to the attainment of such knowledge as to ensure familiarity with common conditions, their recognition and treatment, and the indications for consultation.

8. *Midwifery, Infant Hygiene, and Diseases of Women*, including:—

(1) Systematic instruction in the principles and practice of midwifery and gynæcology, including the applied anatomy and physiology of pregnancy and labour.

(2) Lectures and demonstrations in clinical midwifery, infant hygiene and gynæcology, and attendance on the practice of a maternity hospital or of the maternity ward of a general hospital, and on in-patient and out-patient gynæcological practice, for a period of six months, this period to be subsequent to the medical clinical clerkship (paragraph 6 (2)) and the surgical dressership (paragraph 7 (2)). During this period the hours of clinical instruction should be so allotted that at least two-thirds are given to midwifery, including antenatal care and the hygiene of infants.

(3) Of this period of clinical instruction not less than two months should be spent as a resident pupil either in a maternity hospital, or in a hostel attached to a maternity hospital or the maternity wards of a general hospital, and these two months should be devoted exclusively to instruction in midwifery and in the hygiene of infants. The student should during these two months attend at least 20 cases of labour under adequate supervision.

(4) Throughout the six months the student should receive practical instruction in the wards and out-patient department of the maternity hospital in the principles of (*a*) antenatal and postnatal care, (*b*) the management of the puerperium, (*c*) the care of the new-born infant.

A certificate of having attended 20 cases of labour should be signed by a responsible medical officer on the staff of the hospital, and should state: (i) that the student has personally attended each case during the course of labour, making the necessary abdominal and other examinations under the supervision of the certifying officer, who should describe his official position; (ii) that the first five at least of the 20 cases were delivered by the student in the lying-in hospital or ward; (iii) that satisfactory written histories of the cases attended, including when possible antenatal and postnatal observations, were presented by the student and initialed by the supervising officer.

9. *Pathology and Bacteriology.*—Courses of instruction throughout the Period of Clinical Studies in (1) general and special pathology and morbid anatomy; (2) clinical and chemical pathology; (3) general and clinical bacteriology and immunology.

Each student should be required to have received practical instruction in the conduct of autopsies, and to have acted as a post-mortem clerk in at least ten cases.

10. A course in *Pharmacology and Materia Medica*, including practical pharmacy.

11. *Hygiene and Public Health.*—Instruction in these subjects should be given during the later stages of the Period of Clinical Studies.

12. *Forensic Medicine.*—Instruction in this subject and its application to practice should be given during the later stages of the Period of Clinical Studies.

13. *Legal and Ethical Obligations of Registered Medical Practitioners.*—Instruction should be given during the later stages of the Period of Clinical Studies, by some person having practical knowledge of the subject, on the statutory obligations of registered medical practitioners under the National Health Insurance Acts and other Acts of Parliament, and on the principles of medical ethics. Attention should be called to all Notices on these subjects issued by the General Medical Council.

MEDICINE AND THE LAW

Professional Secrecy where Criminal Abortion is Suspected

WHERE a woman dies as the result of an illegal operation, there is sometimes a suggestion by the police that the medical practitioners who attended her before death have improperly failed to reveal, or to extract, information which would have led to the abortionist's prosecution. Naturally there is no certainty that a dying woman will always have told the doctor the name of the person who performed the illegal operation; but the point is made that, if no such statement is taken from her, no person is identified against whom proceedings can be taken. Such a case occurred at an inquest last week. It is one of those which show the difference between police or magistrates and doctors in their approach to the problem. The doctor is primarily concerned to save life and alleviate pain, and for this purpose will not destroy the patient's confidence and peace of mind by persistent cross-examination; the forces of law and order do not want a criminal to go unpunished. The situation is by no means novel. The dilemma was brought to notice in a well-known instance in 1914 by Mr. Justice Avory in addressing the grand jury at Birmingham assizes (THE LANCET, 1915, i., 28). On that occasion three doctors had attended the dying woman; to one of them she had mentioned the abortionist's name; among her papers was a letter apparently making an appointment with the abortionist. That was all the evidence against the accused, if evidence it could be called, and the case could not proceed. The Royal College of Physicians of London, which had stated a case earlier for the opinion of Sir Edward Clarke and Mr. Avory (as he then was), took up the matter again and published (ibid., 1916, i., 313, and 1932, ii., 847–915) its own view of the medical practitioner's duty. It upheld the essential confidentiality of the relationship between doctor and patient, but added that every doctor who is convinced that criminal abortion has been practised on his patient should urge her, especially when she is likely to die, to make a statement which may be used against the person who performed the operation "provided always that her chances of recovery are not thereby prejudiced." The Royal College went on to say that, in the event of her refusal to make such a statement, the doctor is under no legal obligation to take further action but should continue to attend the patient to the best of his ability; if the patient dies, the doctor will refuse to give a certificate of death and will communicate with the coroner. The College was advised by counsel that legally the doctor is under no obligation either to urge the patient to make a statement or, if she refuses, to take any further action. While this view of the legal position may not obtain the concurrence of chief constables or of magistrates and judges, it is a reasonably safe guide for the medical practitioner as to his professional duty. If the patient is

dangerously ill, a magistrate may take a voluntary statement from her on oath or affirmation which will be available in criminal proceedings after her death, provided that the accused person had reasonable notice and opportunity of being present and cross-examining. A "dying declaration," made by the patient in the belief that her end is approaching, may be made verbally to the medical practitioner or anybody else and will be admissible in evidence. The recipient should write down the exact words used as accurately and as early as possible.

Accessories to Crime

A more active kind of intervention between police and criminals has lately been discussed in America. Dillinger and other public enemies, it appears, may have sought the professional aid of doctor or surgeon in order to disguise the tell-tale impressions left by their finger-prints. The practitioner who undertakes such work can hardly be ignorant of its criminal purpose. He is likely to be prosecuted as an accessory after the fact if, knowing a felony to have been committed, he receives, relieves, comforts, or assists the felon. To "receive" a felon covers "any assistance whatever given to one known to be a felon in order to hinder his being apprehended or tried." This is so stated in Hankins's Pleas of the Crown in a passage quoted with approval in R. *v.* Levy in 1912. The accused in that case had helped a coiner by removing fragments of coining moulds from the coiner's room with the idea of preventing them from being evidence against the coiner. To help a criminal to prevent his known finger-prints from being impressed is clearly to attempt to hinder his being apprehended. If a doctor helps a known "public enemy" in this way, then, apart from the prospect of his criminal liability as an accessory before or after the fact, he might possibly be indicted under the vogue and comprehensive accusation, lately discussed in R. *v.* Manley, of doing an act which is a public mischief.

Prisoners Absconding from Hospitals

George Rivers, aged 36, serving a sentence in Wandsworth Prison, was sent to the St. James's Hospital, Wandsworth, for an operation. Though he was described as a dying man who, with the best possible treatment, might live another month, he managed to escape from the hospital on May 26th after scaling a 7 ft. wall. Wearing his blue hospital suit at his departure, he remained at large until he gave himself up last week at the prison. Such incidents are a reminder that civil hospitals are not equipped for the restraint of patients sent from prison. The latest statistics available show that 109 male and 18 female prisoners were removed from prisons to civil hospitals for operation or special treatment during 1933. The statutory authority is Section 17 (b) of the Criminal Justice Administration Act of 1914, which declares that, while absent from prison in this way under Home Office order, the prisoner is still deemed to be in legal custody. The Prisons Commissioners' report for 1933 contained a statement by the Medical Commissioner that on the whole the prisoners conducted themselves well, "but a few abscond and some hospital authorities are apprehensive when a patient is admitted to a general ward from prison." The apprehension is not entirely surprising and the report explains that steps are being taken to have an operation theatre available in a prison in the London area. Experience has been gained by the satisfactory carrying out of major operations in five provincial prisons.

AUSTRALIA

(FROM OUR OWN CORRESPONDENT)

THE TREATMENT OF INFANTILE PARALYSIS

MUCH controversy in which the main issues have been clouded by spirited attack and counter attack in the public press has arisen during the last few months about the merits of a certain method of treating established infantile paralysis. The story began in February last when it was announced in the public press of Australia that a new system of treating infantile paralysis had been presented to the Commonwealth Government, which in the opinion of prominent medical men had achieved success not previously obtained by other methods. In the *Sydney Morning Herald* of Feb. 16th it was stated that the system had been devised by Sister Elizabeth Kenny and had been approved by the Queensland Department of Health. Dr. J. F. Guinane, who had carried out an investigation for the Queensland Government, was said to have reported that Sister Kenny's methods had made total and permanent cures in early cases of infantile paralysis and that in spastic cases it was superior to any other method. The origin of the treatment, according to this report, was the work done by Sister Kenny during the war when nursing cases of meningitis on troop-ships; during that period she is said to have evolved certain ideas on the treatment of paralysis, and after the war she began to apply these ideas in the treatment of victims of infantile paralysis and cases of spastic paralysis. Sir Raphael Cilento, Director of Medical Services in Queensland, had, it was said, been deputed to investigate the matter, and had reported so favourably that the Government of Queensland had opened a clinic in Townsville in March, 1934, to train students in the methods.

A silent film was shown to medical men and others, to which Sister Kenny supplied a running commentary, in which were shown the results in a number of patients treated by her methods. Three weeks later there appeared in the *Sydney Morning Herald* of March 9th the report of an interview with Sir Raphael Cilento, in which he was alleged to have said: "The Queensland Government or myself do not approve or disapprove of Sister Kenny's method." He had investigated her method and acting on his report the Government had opened a clinic at Townsville in March, 1934. The clinic with a staff of six nurses was established for a two-year period from funds provided by the Home Department. His report was to the effect that her treatment had improved the health of patients particularly in regard to their general activity. In no case had she restored the functions that had been lost by nerve destruction.

The next step in the matter came on March 14th from Canberra where Sister Kenny had gone to place her proposals before the Commonwealth Government; she expressed her astonishment at Sir Raphael Cilento's statements and produced a letter dated Jan. 31st in which, she said, Sir Raphael mentioned his agreement to write a book descriptive of her methods. In his reply to this, in the *Brisbane Courier-Mail* of March 15th, Sir Raphael said that he saw no cause to alter the opinion expressed in his official report. He had agreed to assist Sister Kenny in the compilation of a book, if and when the method should show itself effective to a degree that justified a book. Of the 16 original cases, for the study of which the Townsville clinic has been instituted, in his opinion 7 were stationary, while 5 had abandoned

treatment. These were the only cases of this series which had been under observation long enough to justify even a tentative opinion.

As a result of the publicity there arose a demand from parents having children suffering from infantile and other forms of paralysis to be able to obtain the treatment. Townsville is situated in the north of Queensland and many miles from the larger centres of population. As this is the only clinic available for the treatment, crippled children have been sent by train and aeroplane to Townsville and public subscriptions have been organised in country towns to send children there. A demand also arose for the creation of clinics at Brisbane and other capital cities.

On April 2nd the Commonwealth Government announced the result of its investigations and the Federal Minister for Health and Repatriation (Mr. William Hughes) read a report which had been made to him by the medical superintendent of the Frankston Orthopædic Hospital, Victoria (Dr. Galbraith), and a Melbourne orthopædic surgeon, Mr. Whittaker, on an inquiry they had made into the treatment. Their report was as follows:—

"It is our opinion that the only way of demonstrating the value of Sister Kenny's work, and of comparing it with orthodox methods, would be to give her facilities to treat cases, both recent and chronic, in one, or preferably two, capital cities. Such work should be carried out by Sister Kenny in person, or by her trainees. It would be wise, and with this Sister Kenny agrees, that the location of such facilities be at a public hospital, and preferably a children's hospital. Sister Kenny has always worked with the medical profession, and it is hoped that a cleavage will not be enforced by establishing clinics apart from such hospitals. Under the Hospitals Commission certain safeguards would be necessary, but we are definitely of the opinion that if the Government requests the committees of management of the hospitals to provide such facilities, some mutually satisfactory arrangement could be reached."

As the result of this report, it was decided that the Commonwealth Government should take steps to have the method tested in public hospitals in Melbourne and Sydney with the coöperation of the Victorian and New South Wales Governments. On April 11th the New South Wales Minister for Health announced that his Government had been approached by the Commonwealth Government and was anxious to provide Sister Kenny with all facilities to make an early start with her treatment. Later it was announced that it was proposed to open a clinic at the Royal North Shore Hospital, Sydney.

On May 13th it became apparent that an open break had occurred between Sister Kenny and the Queensland Government over the establishment of the Brisbane clinic. She announced that she did not intend to comply with the request by the Home Secretary to conduct a clinic in Brisbane while any doubt of the efficiency of her method existed, and that she had been unable to arrange for a clinic to be established under conditions satisfactory to her or the patients. Sir Raphael Cilento, she contended, had attempted in his report to the Home Secretary to discredit her methods, had raised doubts about its originality, and had inferred a similarity between her methods and those published by Dr. Wilhelmina Wright in the United States in 1927. (Actually Sir Raphael's conclusion had been that her work was soundly based, was effective within certain limits, and was similar in general principles to those advocated by most modern doctors and specialists.) Everyone, she added, would appreciate her unwillingness to have her work extended in Queensland in view of the unsympathetic attitude of the Government medical adviser.

The Queensland Government announced that it intended to proceed with the clinic, and on May 25th Sister Kenny in the *Brisbane Courier-Mail* stated that she had not given her permission for the use of her methods at this clinic, one reason being that the description of her method had not been officially presented to the Home Secretary. The only copy of the description of her method was in her possession. Sir Raphael Cilento had possession of an incomplete and discarded draft copy, in which one essential feature was not mentioned. She had asked the Home Secretary, in the interests of the public, to have that copy destroyed. She resented, she said, Sir Raphael's half-hearted approval of her work and his implication that her method was not original. She proposed that a committee be appointed to determine the originality of her work. Years before she had visited America she had effected cures in Australia.

A reply to this was made by Sir Raphael Cilento in which he said that the Government intended to open the Brisbane clinic and place in charge of it the nurse who was first appointed and longest trained at the Townsville clinic. He regretted that he had been made "the villain of the piece" and suggested that the real reason for her not opening the Brisbane clinic was that she had received a better offer to establish a larger clinic in Sydney. He repeated his opinion "that her work was soundly based and was effective within certain limits. To suggest that there should be no qualifications as to the effectiveness of her method was to suggest that it should be described as miraculous."

The Government also announced that it intended to make a register of all sufferers from infantile paralysis in Queensland. An effort would be made to trace every possible case and in view of the success that had attended the work so far, the Government was of the opinion that every paralysis sufferer should be given a course of after-treatment at clinics which would be established at various centres throughout the State. It was also announced that the Government had taken over the control of the Townsville clinic as a Government activity. Resentment at this action by the Government has been expressed at a meeting of the parents of patients at the clinic and a public meeting of protest is being arranged.

Sister Kenny on May 17th made a further announcement. Her attitude throughout had been that she would not extend the work at Townsville to any other centre unless she had the complete confidence of the people and Governments concerned. So that there would be no repetition of the trouble which had occurred in Brisbane, she must have an assurance, before she would accept the invitation to establish a clinic in Sydney, that the authorities in New South Wales were convinced of the originality of her method, its scientific basis, and its value to the medical profession. For this purpose a Sydney doctor would visit her in Brisbane within a week, and when the Queensland Government was prepared to comply with her conditions for the protection of all concerned, she was ready to serve the people of that State.

The medical profession in Australia and the public generally are very much in the dark concerning the whole matter, and no public disclosure of the method has been made. The first announcement was somewhat modified by the medical authorities in Queensland, who state that the results obtained have been satisfactory, but discount anything miraculous. On the other hand, a letter has appeared in the

Courier-Mail, May 14th, signed by five of Sister Kenny's patients, in which they state that all but one of them had had many years' experience with orthodox methods of treatment, and that results were obtained by Sister Kenny's methods which appeared impossible of accomplishment by the ordinary treatment; the improvements had been of a permanent nature and no relapse had occurred in five months.

What the exact nature of the treatment consists in is difficult to ascertain. Undoubtedly re-education plays a large part in it. By some the treatment is regarded as being of the nature of psychic cure by a woman of outstanding personality. It is considered that her personal service and supervision in carrying out the treatment plays a large part in its success. The method is reputed to differ from those ordinarily adopted in the following respects:—

1. No splinting or plaster is used at any stage of treatment.
2. Movements are carried out where possible under water, to which some salt is added.
3. Treatments are given frequently during the day, with rest periods between.
4. Hydrotherapy in the form of sprays and showers is used.
5. Attempts at active and passive movements are made at the earliest possible moment.

As Sister Kenny has nowhere set out the details of her method, there is no way of checking these impressions which are based on reports and on remarks made by her whilst demonstrating her film.

In view of the public interest in this matter, it is to be hoped that a public disclosure of the method will soon be made. Amongst medical men who have examined patients treated by the method, there appears to be considerable divergence of opinion as to its value.

AN UNUSUAL MEDICO-LEGAL PROBLEM

About the middle of April some fishermen caught a large tiger shark on the Coogee Beach for the purposes of exhibition at the Coogee Aquarium. The shark refused to eat and for a week swam lazily up and down the pool, brushing its body against the sides. On April 25th it began to flay the water to foam, dashed up to one end of the aquarium, and threshing wildly with its tail, disgorged several objects. These included some vertebræ of a large fish and a human arm. A piece of rope was tied tightly around the wrist and the arm was in a good state of preservation. There was a large gash in the front of the arm just above the elbow and some small irregular and superficial incisions, which may have been caused by the teeth of the shark, on the back of the forearm. The arm was cleanly cut through just beyond the acromion and cleanly dissected off at the shoulder-joint. On close examination it was thought by the authorities to be unlikely that a bite of a shark could have so nearly removed the arm through the joint, and that removal was probably by human agency. It was clear from the flaps that the method adopted was not surgical, and the arm showed no evidence of being a discarded dissecting-room specimen. On the front of the forearm was a tattoo mark of two men boxing. The police continued their investigations; they obtained the fingerprints with some difficulty and later the arm was identified by its tattoo marks and fingerprints as belonging to a man who had disappeared from his home on April 8th and had since then not been heard of. As nobody was forthcoming, the city coroner could hold no inquest and there was not sufficient of the body to permit him to hold a magisterial inquiry. It is thought that the police will attempt to overcome their difficulty by bringing medical evidence to certify that the owner of the arm could not have lived without medical attention. A man has been arrested and charged with murder. The incident is not altogether without precedent, as according to a story in H. S. Mazet's book "Shark! Shark!" the crew of the brig *Nancy* were sentenced for piracy in 1771 on the evidence of a log book found in the stomach of a shark.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

NEUROPATHOLOGY

THE Scottish mental hospitals have a joint scheme for pathological research, and an account of its thirty-seventh year's work has just appeared. Two years ago the board secured the services of Dr. J. H. Biggart as pathologist, and he has been able to form a highly efficient laboratory for the study of neuropathology. Specimens are sent to him from many of the mental hospitals in Scotland, and from general hospitals in Edinburgh, particularly the Royal Infirmary where the laboratory is situated. His services are already much appreciated by all who are interested in neuropathology, and it is to be hoped that his laboratory will be increasingly used both for routine examination and for research work. A specialised laboratory such as this is essential for the proper study of the pathology of the nervous system, owing to the complicated nature of the modern staining technique.

A CHILDREN'S HOSPITAL

The annual report of the Royal Edinburgh Hospital for Sick Children shows that its work is steadily increasing. A total of 3144 cases were treated in the wards during the year, and the number of attendances at the out-patient department, including the massage and sunlight departments, was nearly 40,000. The ordinary income amounted to £14,264; the income from legacies and the like was £10,280; and the expenditure for the year was £19,019. During the year 190 patients were treated in the convalescent home at Gullane. Through the generosity of Lord Forteviot and members of the Dewar family a new convalescent home for children under two years of age is to be opened. The medical staff intend to start a campaign against rheumatism in childhood, which they compare to cancer in the adult. No disease is more tragic and they are to be congratulated on this intention.

PIONEERS IN MENTAL DISEASE

Bronze plaques in memory of six pioneers in the humane treatment of mental disease were unveiled last week by Sir Arthur Rose, chairman of the General Board of Control for Scotland, in the grounds of West House, Royal Edinburgh Hospital for Mental and Nervous Disorders. They are arranged around the bust of Philippe Pinel, and commemorate the work of William Tuke, Andrew Duncan, Florence Nightingale, Dorothea Dix, Gardiner Hill, and Campbell Clark. Tuke was the founder of the Retreat in York, and Duncan of the Royal Edinburgh Asylum. Dorothea Dix, an American, after visiting the asylum, was so impressed by the work done there, that she made a report which resulted in the Lunacy Act of 1857 coming into being. Gardiner Hill had much to do with the abolition of restraint and locking-up in mental cases; Florence Nightingale had

advanced ideas in practice and theory on the treatment of mental cases; and Campbell Clark advocated the registration of nurses both male and female. The leading part played by the Royal Edinburgh Hospital in the treatment of mental diseases was emphasised by speakers at the ceremony, and it was pointed out that the hospital was the first to use women nurses for the care of the mentally afflicted. This has proved to be one of the biggest advances made in the treatment of mental disease.

PARIS

(FROM OUR OWN CORRESPONDENT)

PROFESSIONAL DISCIPLINE

I HAVE already referred to the proposal to create a doctor's Order which, modelled to some extent on the one that governs the legal profession, should fulfil certain functions of the English General Medical Council. Matters have now advanced so far that the Bill in question has passed the chamber of deputies without discussion and has come back again after a certain amount of mutilation by the Senate. It remains to be seen whether the chamber will approve of the modifications now made. One of them concerns the composition of the final court of appeal; the Confederation of Medical Syndicates would have liked this court to consist of two lawyers and four doctors, but the senate prefers three doctors and three lawyers. As the president would be one of the legal experts and would have a casting vote, the balance of power would be with the layman. This point may be trivial or crucial. On the whole it is thought to be trivial for experience elsewhere has shown that the legal mind will often defer to the opinion of the medical profession in its own realm. In other words, legal acumen is not always divorced from common sense.

Meanwhile, it is interesting to note that the need for a doctors' Order was almost met as long ago as 1845, when a scheme was on foot for the creation of "medical colleges" with functions mainly disciplinary. Like much other useful legislation this scheme came to nothing in the revolution of 1848; and its suspension was regarded on the whole with equanimity by the doctors of that day, who saw in it rather too much of the schoolmaster. This was a time when the ethical standard of the medical profession was jealously kept at a high level. The black sheep was comparatively conspicuous, partly because the fold was small, partly because he was obviously in the minority. Now, it is regretfully admitted, the fold is far larger than the remunerative pasturage, and the many genuinely black sheep are the less conspicuous because there are so many piebald cross-breeds in the flock. Much of the blame for the lowering of standards is laid at the door of sickness insurance, which has created new conditions of medical practice. These conditions certainly afford wonderful opportunities for smartness and a nimbleness of wit which is sometimes construed unfavourably by colleagues who are not so agile mentally. It remains to be seen how the new Order will deal with these problems. Its enemies gleefully point to the not infrequent lapses of which lawyers are convicted despite the disciplinary terrors of their Order.

USE OF BARBITURATES FOR SUICIDE

The vogue of barbiturate suicides has now become so embarrassing that the minister of public health has asked the Academy of Medicine to give an opinion on the desirability of including certain barbiturates and other drugs among those which cannot be bought without the signature of a doctor. The Société de Pharmacie de Paris recently adopted a unanimous resolution recommending, among other things, the examination of this problem by a commission which might well be the Commission Permanente du Codex. Hitherto legislation and practice have wobbled uncomfortably from one extreme to the other. There have been times when you could not buy syrup of tolu without a doctor's prescription, whereas at present you can buy without prescription all you need and more to secure your early demise. As for the barbiturates, whose usefulness in insomnia is unquestionable, the suggestion has been made that they be combined with ipecacuanha in proportions assuring the speedy return of the drug taken in suicidal doses; indeed, a formula for the purpose is said to have been devised already. It is to be hoped that this expulsive compromise will be adopted, for the public is so accustomed to the purchase of certain popular hypnotics that it would assuredly resent the imposition of medical restrictions at this time of day. After all, poisoning by the barbiturates is fairly easily dealt with in hospital provided the case is not exceptionally severe. From the Saint-Louis Hospital Dr. C. Flandin reports encouraging experiences, in more than 200 cases, with injections of strychnine. He prefers it to Coramine or anything else as an antidote; but the dosage must not be timid. He has never known strychnine kill the patient offhand, even when 50 mg. (gr. $\frac{3}{4}$) was given intravenously. The dosage he recommends, under the control of Chovstek's sign, is between 20 and 50 mg. repeated every half-hour or hour till the desired effect has been obtained. He reinforces this treatment by venesection, blood transfusion, and, above all, by artificial respiration supplemented by the inhalation of a mixture of oxygen and CO_2. Adrenalised serum, given per rectum, is also useful. If too much strychnine has been given, there are antidotes to it; Gardenal is too toxic for this purpose, but Isonal gives a much wider margin of safety. Dr. Flandin dispenses with alcohol, for he is inclined to regard it as an adjuvant rather than as an antidote to barbiturate poisoning.

THE INTERNATIONAL UNION AGAINST CANCER

After a difficult labour lasting more than ten years, the International Union against Cancer was born on May 4th of this year. Forty-four nations were represented on this occasion. Justin Godart is the first president of the Union, whose headquarters will be in Paris. In his presidental address he outlined the steps which led to the birth of the Union and referred briefly to its future functions.

KING GEORGE HOSPITAL, ILFORD.—For the coming year a maintenance income of approximately £40,000 will be required. There has been during the past year a capital outlay of over £21,000, and the building fund has been reduced from £24,720 to £18,950. During the year 142 beds have been available and 154 occupied, daily extra beds being constantly in use.

NOTTINGHAM GENERAL HOSPITAL.—Six single-bedded wards, ten 2-bedded wards, and two 4-bedded are to be provided in the pay-bed wing of this hospital. The maximum charge will be not more than 4 guineas a week maintenance rate. In addition there will be six single-bedded wards available for generous friends of the hospital, the charge for these being 10–12 guineas a week maintenance rate.

CORRESPONDENCE

THE INTERNATIONAL CAMPAIGN AGAINST RHEUMATISM

To the Editor of THE LANCET

SIR,—An active campaign against chronic rheumatic disease is now being prosecuted in many countries and with encouraging results. We desire to call the serious attention of your readers to the efforts of the modest organisation to which this widespread activity is largely due.

The first International Committee on Rheumatism was appointed in Paris just ten years ago.[1] A few months later (November, 1925) an International Conference on Rheumatism was held at the house of the Royal Society of Medicine, and addressed by Sir George Newman, on behalf of the Ministry of Health, and Dr. Kahlmeter, of the Board of Pensions in Sweden. Reports were presented from England, France, Holland, Denmark, Switzerland, and Rumania.

Following this conference the International League against Rheumatism was constituted as an independent body, with a central council consisting of national representatives, and began its task of associating in one organisation the isolated workers in rheumatic disease. Meetings were called and committees were quickly set up in many countries. A periodical journal, the *Acta Rheumatologica* in three languages, was produced and widely circulated, and a small central bureau and library were opened.

International congresses, arranged with the help of the national committees and attended by government representatives from the countries seriously affected by rheumatic disease, have awakened great interest in the medical profession, and in industrial and social bodies. The problems of research and treatment, together with the social, economic, and industrial results of rheumatism, have been examined at these meetings—in Prague, Budapest, Liége, Paris, and (1934) Moscow. The next Congress is due in Sweden in 1936.

Fortunately the costs of the journal have in most years been nearly met by personal subscriptions, but apart from the journal the wide activities of the League, in which there is no salaried officer, entail a certain (very moderate) expenditure. This has been until lately met by contributions from a number of national groups. Unfortunately now, owing to widespread economic difficulties, most of the countries connected with the League are unable to continue their grants. The actual income in 1934 has fallen on this account to one-third of what it was in 1931. The annual deficits (£119 for 1934 and £316 for previous years) now amount to £435, and have been met by officers and friends of the League.

The famous Report of the British Ministry of Health in 1924 on the Incidence of Chronic Rheumatic Diseases called attention to the extent and gravity of the rheumatic problem in northern countries, and this report is still regarded as a milestone wherever rheumatic diseases are being seriously studied. Britain gave this lead, and has done excellent work in following it up. It is, however, rather humiliating that while smaller nations, known to be distressed, have subscribed or, if unable to subscribe, made up deficiences from private sources, this country, which has benefited not a little by the work of the League, has not come forward with any financial support. Probably this is an accidental oversight, and we should be proud to shoulder our share of the burden.

At the last meeting of the Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians it was resolved: "That this committee recognise the value of the work being done by the International League against Rheumatism, and consider it worthy of the support of all interested." A sum of £1000 is needed to tide over the emergency until more normal conditions are restored. We hope that this sum will be forthcoming from public bodies and private individuals who may be glad to supply this need. Contributions may be sent to A. C. Timbrell Fisher, Esq., M.C., F.R.C.S., 59, Montagu-square, W.1.—We are, Sir, yours faithfully,

R. FORTESCUE FOX, President of the League, HORDER,
FRANCIS R. FRASER, HUMPHRY ROLLESTON,
W. H. WILLCOX.

[1] At the annual meeting of the International Society of Medical Hydrology (April, 1925).

ZOOLOGY AND MEDICINE

To the Editor of THE LANCET

SIR,—The profound connexion between medicine and zoology in the past and at the present time offers ample justification for a discussion on their present relations. Every medical graduate is a zoologist of a kind, a homozoologist; and every specialist on any kind of animal, vertebrate or invertebrate, is a zoologist of the same order as the human specialist. Their problems are comparable and their affinities manifest. Thus, although every zoologist does not specialise in one animal nor does every medical graduate specialise in the ensemble of man, their fundamental needs in training are, it will be generally admitted, similar to a great extent.

The precise extent of the needs of the medical student, as defined recently by the conference of representatives from Oxford, Cambridge, London, the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London, will doubtless be considered by the General Medical Council which, it is understood, has the same problem under consideration. If, however, the thesis that the basic training needs of zoologist and medical student are largely identical is admitted, it would seem advisable that the problem be discussed with representatives of such a body as the British zoologists. The writer holds the view that, although a good elementary knowledge of botany is important to the medical student, the zoological training is of far greater importance and needs special consideration.

In reviewing the medical curriculum as a whole it is necessary to decide whether knowledge of the following subjects, for example, is desirable and in which part of the curriculum, if any, they should be treated:—

An acquaintance with the chief groups of animals and more detailed knowledge of amœba, paramecium, hydra, obelia, lumbricus, periplaneta; along with elementary comparative anatomy of fish, amphibian and mammal.

Elementary histology of vertebrate tissues.

Elementary knowledge of the function of all parts of the body, leading to an appreciation of the functions of the body as a whole.

Elementary knowledge of common parasites—e.g., monocystis, plasmodium, entamœba, ancylostoma, distomum, bilharzia, tænia, ascaris.

Elementary knowledge of common pests—e.g., house-fly, mosquito, flea, bug, lice, sarcoptes, and poisonous animals.

Simple Mendelian characters in plants and animals (including man) and simple facts of variation.

The principle of shell-fish cleansing.

Sex-phenomena and modes of sex-determination, simple facts of dedifferentiation and regeneration, tissue-culture.

Commensalism, symbiosis and parasitism.

Development and differentiation in a minimal series, as echinus, amphioxus, chick, mammal.

Argument for evolution based on simple *facts* of geological succession of vertebrates, of embryology, physiology, classification, distribution and modification of organs.

Animal behaviour, animals and their environment, and theories of evolution treated in a very elementary manner.

Elementary practical experience; in dissecting, in use of microscope, in identification of bones, of fresh and preserved tissues, of living animals and stages of life-histories.

It follows that if a knowledge of all or most of these subjects is desirable in the first year of training, the subject matter of zoology alone becomes comparable in extent with that of elementary physics and elementary chemistry.

I am, Sir, yours faithfully,

The University, Liverpool, June 11th. J. H. ORTON.

*** The report of the Curriculum Committee of the G.M.C., adopted by the Council as an interim document for the consideration of the training centres, was not published when Prof. Orton wrote; but his letter is very apposite when read in connexion with the Committee's recommendations.—ED. L.

STIMULANTS OF METABOLISM

To the Editor of THE LANCET

SIR,—My remarks in the annual oration of the Medical Society of London on May 13th concerning dinitrophenol and Dekrysil (4 : 6-dinitro-o-cresol) followed others on the need for caution in the use of cinchophen (Atophan), which has caused toxic jaundice in a number of cases seen by me personally. The nitrobenzene derivatives, such as trinitrotoluene, dinitrobenzene, dinitrophenol, and picric acid (trinitrophenol) have all been recognised as liver poisons and they, too, have caused numerous cases of toxic jaundice. Dinitrocresol (dekrysil) as regards its toxic action on the liver belongs to this group of drugs and it was for this reason that a note of warning was given by me.

Prof. E. C. Dodds, for whose scientific work I have a high regard, strongly emphasised in his published papers the need for great care in the therapeutic use of dekrysil and was obviously fully aware of possible dangers from over-dosage. The case quoted by Dr. Wilfrid D. Newcomb in your issue of June 1st (concerning which I was consulted) fully confirmed the dangers to the liver and kidney from over-dosage, such as would be likely to occur in a young dancer for whom the urge for slimming was great; there was no suggestion of suicide in this case. The liver and kidney cells showed remarkable degenerative changes.

Cases of disturbing symptoms from the use of dekrysil have been brought to my notice and it appears that certain persons are highly susceptible to this drug, as is known to be the case with dinitrophenol. Prof. Dodds wisely advised that its action should be controlled by determinations of the basal metabolic rate and careful medical observation of other symptoms. This supervision, however, is only really effective in hospital or nursing-home. It is doubtful if patients suffering from obesity and carrying on their ordinary avocations can be trusted to obey implicitly the injunctions of their medical advisers as regards dosage when their weight is not falling as rapidly as they desire. It is here that the danger comes.

I am, Sir, yours faithfully,

WILLIAM H. WILLCOX.

Welbeck-street, W., June 11th.

To the Editor of THE LANCET

SIR,—Prof. Dodds and Dr. Robertson in your issue of May 25th, commenting on Sir William Willcox's reference to the use of dinitro-o-cresolin the treatment of obesity, state that provided a careful watch is kept on the patient and the basal metabolic rate is measured frequently, there is no danger in its use. Our experience with dekrysil at Kasr-el-Aini Hospital, results of which have been published elsewhere,[1] shows that the B.M.R. is not an accurate index to the toxicity of the drug. We have encountered cases which showed grave toxic symptoms (severe vomiting, giddiness, cold sweats, low temperature 35·5° C., and other features of collapse, followed later by a rise of temperature to 40° C. and then a gradual return to normal in a week's time), with a B.M.R. of + 34 per cent. only, whereas in other cases, the B.M.R. has reached + 77 per cent. with trivial or no toxic symptoms at all. Our impression, after a fairly extensive trial, is that dekrysil as a weight-reducer is exceedingly disappointing, and is not free from danger.—We are, Sir, yours faithfully,

MOHAMED IBRAHIM, M.D., M.R.C.P.
HOSNY AYAD, M.B.

Medical Section, Kasr-el-Aini Hospital, Cairo.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING WEEK ENDED JUNE 1ST, 1935

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2093; diphtheria, 971; enteric fever, 32; acute pneumonia (primary or influenzal), 1118; puerperal fever, 42; puerperal pyrexia, 119; cerebro-spinal fever, 15; acute poliomyelitis, 7; acute polio-encephalitis, 4; encephalitis lethargica, 3; dysentery, 38; ophthalmia neonatorum, 94; No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals for the London County Council on June 7th was 2977, which included: Scarlet fever, 943; diphtheria, 1155; measles, 28; whooping-cough, 375; puerperal fever, 30 mothers (plus 11 babies); encephalitis lethargica, 269; poliomyelitis, 3. At St. Margaret's Hospital there were 16 babies (plus 7 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 16 (0) from measles, 7 (0) from scarlet fever, 20 (3) from whooping-cough, 33 (2) from diphtheria, 41 (15) from diarrhœa and enteritis under two years, and 58 (8) from influenza. The figures in parentheses are those for London itself.

Beckenham and Sheffield each reported one fatal case of enteric fever. Three deaths from measles occurred at Liverpool and at Wigan. Sheffield reported 4 fatal cases of diphtheria, Liverpool 3, no other great town more than 2. Of the deaths attributed to influenza 5 occurred at Bradford, 4 at Birmingham.

The number of stillbirths notified during the week was 282 (corresponding to a rate of 41 per 1000 total births,), including 40 in London.

[1] Ibrahim, M., Ayad, H., and Mahdi, M.: Jour. Egypt. Med. Assoc., 1934, xvii., 968.

INFANTS HOSPITAL, VINCENT-SQUARE.—The income of this hospital for the past year was £18,287 and the expenditure £18,965. The hospital now contains 100 cots and seven separate rooms for nursing mothers. The building extension scheme was completed in the autumn.

OBITUARY

WILLIAM STUART-LOW, F.R.C.S. Eng.

CONSULTING SURGEON, CENTRAL LONDON THROAT AND EAR HOSPITAL

WE owe the following memoir to Sir James Dundas-Grant: "William Stuart-Low's death from heart failure following influenza was the end of a very remarkable career. He was born at Burntisland, in Fife, in 1857. His father was in the scholastic profession and doubtless bequeathed to him the capacity for teaching which displayed itself when he joined the staff of the Central London Throat and Ear Hospital. Intended for the veterinary profession, he was attracted to that of medicine and was able to qualify in 1884 as Licentiate of the Royal College of Physicians of Edinburgh. According to his own story, having his way to make, he started practice in a working-class neighbourhood in the south-western district of London, taking also a resident patient into his house to help towards the necessary expenses. He then migrated to the more desirable surroundings of Herne Hill where he had the good fortune to meet a lady of both personal and intellectual attractions, who became his wife. She added greatly to the brightness of his life and he afterwards spoke of her as the 'best friend he ever had.' While in busy practice he made time for preparing for the Fellowship of the Royal College of Surgeons of England, absorbing with avidity both the academic teaching and the *obiter dicta* of those from whom he sought instruction. He was particularly inspired by the teaching of the late Wm. Anderson, surgeon to St. Thomas's Hospital, for whose anatomical accuracy and surgical refinement he had the greatest admiration.

MR. STUART-LOW

"In 1903 he was appointed to the staff of the Central London Throat and Ear Hospital at the age of 46. Both there and at the Polyclinic—the Medical Graduates' College in Chenies-street, W.C.—he made his mark as a teacher and thereby added considerably to his success in consulting practice. Curiously, he was guided more by his *perfervidum ingenium* than by the Scotch tendency to rely on strict logical reasoning. It may be said that his methods were inductive rather than deductive, and he had original views which when tested in his own practice had a remarkable measure of success. His insistence, for instance, on the value of mucin in cancer of the throat may not be universally accepted, but there can be no doubt as to the relief afforded by the use of his preparations. His use of horse serum in the irrigation and dressing of operation wounds was an original idea, but it appears to have its equivalent in some modern methods of treatment. He devised a number of details in dressing, fixing, and dealing with operation cases, which afforded evidence of his originality.

"At the Royal Society of Medicine he was a very regular attendant, though he did not show many cases. His remarks, however, were at times inspired by his difference of opinion from that of some previous speaker. He then expressed himself with deliberation and emphasis, and if he appeared to be unnecessarily downright in his utterance it was probably because he had formulated in his mind what he had to say tersely and without the frills with which too many speakers embellish their statements.

"Stuart-Low was powerfully built and endowed with exceptional physical vigour. An unusually early riser, he took a pride in performing his operations when others had not yet breakfasted. In spite of his commanding figure he tended on the whole to be shy and reserved, and the sensitiveness of his disposition was known probably to only a few. He was not a prolific writer, but he put forward his views with decision and happy phraseology. His work on 'Mucous Membranes, Normal and Abnormal, including Mucin and Malignancy,' published in 1905, amply illustrates the characteristics of his vigorous modes of thought.

"To the writer he was ever a loyal friend, whether as pupil, assistant, or colleague, and he and many others with him will greatly miss Stuart-Low and deplore his decease. He is survived by his widow and a son and daughter."

J. D.-G.

PANEL AND CONTRACT PRACTICE

Study Courses at Hammersmith

WE have already noted that the British Postgraduate Medical School is arranging during the coming summer intensive "refresher" courses for general practitioners. The first of these courses, of which full details will be found in our advertisement columns, opens next Monday, June 17th, and as only a limited number can be admitted to one course early application for the later courses is recommended. Here it is appropriate to consider the circumstances in which certain insurance practitioners may receive financial assistance towards such study. Assistance is made by way of grants from the special expenses portion of the central mileage fund, and it must be shown that the doctor (1) has been in practice other than hospital practice at least one year before the date of application; (2) practises in an isolated or sparsely populated rural area and has no reasonable access to a town in which hospital practice is available and meetings of medical societies can be attended; and (3) is unable, without assistance, to afford the cost of a course of study. Recommendations are made to the Ministry of Health not later than the end of February in each year jointly by the insurance committee and the panel committee which must satisfy themselves that applicants fall within the terms of eligibility. Applications for a further course would be entertained after an interval of five years, unless special reasons are advanced for a repeat course at a shorter interval. The available fund is limited, and applications from any area are considered in relation to those from the country as a whole. Normally the grant would not exceed £20, but in

exceptional cases the whole cost may be met (subject to prescribed maxima under each item) for subsistence expenses, travelling expenses to the nearest suitable centre, course fees, and the engagement where required of a whole-time locum tenens.

It should be borne in mind that the scheme is restricted to insurance practitioners in rural districts, and it is, presumably, now too late to apply for assistance for the year 1935, although in view of the new situation created by the opening of the Hammersmith school it might be well to test this.

Refusal to Visit: Charge Rebutted

A London insurance practitioner was recently charged with having failed to visit a patient on request. The complaint was that the woman having been discharged from hospital became ill the same evening and requested a home visit on the following morning, but the practitioner declined to come and the services of another doctor were obtained.

The practitioner pointed out that he had received a telephone message from the house physician to one of the honorary staff of the hospital to the effect that the patient had discharged herself voluntarily, that she had been in bed for two weeks, had been examined by the "honorary" personally, had had numerous X rays taken, and every conceivable pathological test, all with negative result. The hospital authorities had told her she was not ill but had advised her to remain a day longer to get used to being out of bed. The practitioner having attended her at home or at his surgery 43 times during the previous 12 months without ever finding any sign of physical disease agreed with the opinion of the house physician that while there might be a neurotic element in the patient's condition she was not physically ill. Next morning he received a clinical report from the hospital and soon afterwards a message from the patient's mother asking for a home visit. Being engaged with another patient he sent a message to the mother that he had been informed by the hospital that her daughter was not ill, but if she wished to see him she could come to the surgery—less than two minutes' walk. The mother sent a further message that the patient was ill and needed attention, to which he replied that he was engaged but would be prepared to see the mother in half an hour's time. No further application was made for his services.

Unfortunately the patient was ill this time. The other doctor who was called in found her suffering from a febrile attack with pain in her back, vomiting, headache and general malaise, and unfit in his opinion to leave the house. Although (in the words of the subcommittee's report) she "gave a lengthy history of various illnesses from which she had suffered in the past," it might well have been held that the practitioner had committed a breach of Section 9 (5) of the terms of service in failing to visit a patient whose condition so required, but the committee took the view that the previous history of the case, coupled with the message from the hospital and the clinical report, doubtless prompted the practitioner to regard as unreasonable the request for a home visit within 24 hours after the patient had voluntarily discharged herself from hospital. Although the practitioner had offered to interview the mother within half an hour another doctor was called in and no further attempt was made to obtain the services of the responsible practitioner. The committee found that there was no failure on the part of the practitioner to comply with the terms of service and that the cost of treatment obtained from the second doctor was not reasonably and necessarily incurred.

The case was dealt with under 6 (1) (b) of the rules for the administration of medical benefit; when the subcommittee are of opinion that the case is one which can be disposed of on the written statements of the parties, and both parties agree, there is no hearing.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Whitsuntide Adjournment

THE House of Lords adjourned for the Whitsuntide recess on Thursday, June 6th, until June 17th. The House of Commons adjourned on Friday, June 7th, until June 17th.

The Housing Bill in the Lords

On June 5th in the House of Lords Viscount HALIFAX, President of the Board of Education, moved the second reading of the Housing Bill. He said that the suspension of building during the war, the dislocation of labour and material supplies which followed the war, the suspension of emigration, and the steady increase of population amounting to some 2,000,000 persons between 1921 and 1931, taken together with the need of improving then existing conditions had been the occasion of a whole series of Housing Acts and of the provision of something like 2,500,000 houses between 1919 and 1934, estimated to give accommodation to some 7,000,000 persons. But all that great provision of houses had made no more than a negligible contribution towards the solution of the worst housing evils—namely, slums and overcrowding—for the reason, he supposed, that they had failed to define their objects with sufficient clearness and to satisfy themselves that they had adequate powers to achieve them. It was the recognition of that fact that had induced the present Government for the first time, he believed, in the history of housing reform to try to attack the problem on what they believed to be more definite and more logical lines. In that policy the Government had accordingly sought to proceed by three quite distinct and consecutive stages. The first stage was taken in 1933 when they withdrew the subsidies for new houses at large, thus liberating as far as possible the instrument of private enterprise from the shackles of subsidy competition and ensuring that where subsidies were still essential the available public money should not be dissipated but should be used only where the principal object of getting houses of the right sort and in the right place could not be achieved without them. The number of houses that were built by private enterprise in the half-year ending in March, 1934, was over 120,000; in the next six months it was 137,000; and in the six months recently ended it was just on 150,000. That last figure represented a total of about 300,000 houses a year, which compares with an annual total of about 200,000 before the passing of the 1933 Act, and it was interesting to add that this figure of 300,000 houses a year was estimated to include not less than 100,000 Class C houses. Those figures were sufficient justification of the policy that the 1933 Act embodied.

Generally speaking, present-day building costs and rates of interest when taken with the Exchequer subsidy under the 1930 Act made it possible to charge an inclusive rent of not more than 10*s*. a week, and many local authorities charged rents well below that sum. There was a provision in this

Bill for the unification of housing accounts which it was anticipated would in future give local authorities freedom to use the resources which they obtained from the Exchequer to the greatest possible advantage; and further, the Bill expressly recognised the duty of granting rebates of rent to persons whose financial position rendered that course necessary and justifiable. The second stage in the housing policy of the Government was to apply the Act of 1930 to a definite five-year programme of slum clearance. Here, again, he thought they might claim that the campaign against the slums had been so far an unqualified success. The number of houses promised by local authorities since the policy was launched had been over 100,000, and he believed that well over 26,000 were actually under construction at the end of April last, and there was every reason for thinking that the five-year plan for replacing houses in which people ought not to be asked to live by houses in which they might take some pride would be carried out in five years, except in such areas as London, where it had always been recognised that the amount of work to be done must require a longer time.

The third stage in the Government's housing policy was that which dealt with the problem of overcrowding. It was with that aspect of the question that the present Bill was designed to deal. The Bill laid down a standard based on the two obvious principles that proper separation of the sexes should be observed and that the houses should not be occupied by more people than they could properly accommodate. He was convinced that no lower standards than those set out in the Bill could secure the objects which the Government had in view. To those who might object that the standards prescribed were too low, he would point out that those standards represented neither the ideals of the Government nor the realities which in most cases would no doubt be attained. He suggested, however, that in the application for the first time of penal standards it was necessary to temper zeal for what might be with a practical recognition of what was; and that it would be for the national conscience to show that they were obsolete. To meet criticism which had been made in some quarters he would point out that the standard on which new houses were to be provided was not the penal standard of this Bill but the much more liberal standard laid down in Section 37 of the Act of 1930. These standards were intended to be for general application, but it was recognised that some discretion must be allowed in their application. The first part of their task then was the preparation of standards; the second was to see that such standards were enforced; and the third, and most important, without which enforcement would obviously be impossible, was the provision of suitable alternative accommodation.

The Bill was read a second time.

University of Durham Bill

Viscount HALIFAX presented a Bill to make further provision with respect to the University of Durham and its constituent divisions and colleges.

The Bill was read a first time.

Voluntary Hospitals (Paying Patients) Bill

The Voluntary Hospitals (Paying Patients) Bill was read the third time and passed.

Bills Advanced

On June 6th, in the House of Lords, the Restriction of Ribbon Development Bill and the Unemployment Assistance (Temporary Provisions) (No. 2) Bill were read the third time.

In the House of Commons on June 5th the Government of India Bill was read the third time.

National Health Insurance Bill

In the House of Commons on June 6th Sir HILTON YOUNG, Minister of Health, moved the second reading of the National Health Insurance and Contributory Pensions Bill. The measure, he said, was one of great social importance to very wide classes in the country. The great depression had affected the whole basis of the National Health Insurance scheme adversely. How adversely the scheme had been affected by the general depression and the unemployment was closely revealed on the occasion of the Third Valuation, when the Government actuary's report disclosed that, owing to the diminution in the contribution income on account of unemployment, great evils were impending over the National Health Insurance system. Many of the approved societies were threatened with being driven down into a deficiency, and it became urgently necessary to take emergency measures to protect the basis of National Health Insurance for the preservation of its solvency and of the contributory principle. Had such measures not been adopted National Health Insurance would have followed the course of unemployment on its downward track which would have led to complete financial disaster. At that time, also, owing to the general adverse state of the national finances, the Exchequer was unable to give any exceptional and additional financial assistance to the National Health Insurance scheme, and for that reason the scheme had to be fortified and rebased without help from outside. That was done by the Act of 1932. What were the measures taken in 1932 to protect health insurance and its continuance from the evils which then threatened it owing to the great depression

In the first place, it was found impossible to continue some of the special concessions made to the unemployed in easier financial times. It was found impossible to continue them indefinitely from year to year, owing to the fact that the unemployed had been for a long period unable, on account of their unemployment, to make their contributions to the scheme. Secondly, it was found impossible to continue the system which had been introduced in 1928 for the further relief of the unemployed—the system under which the unemployed were credited with all arrears of contributions due to unemployment, so that in weeks of unemployment they were excused all contributions and the arrears which subsequently arose in their contribution records had no effect in reducing their cash benefits in the subsequent contribution year. That was the second concession which it was necessary partially to diminish in 1932 by going back on the 1928 arrangement to the extent that only half of the contributions due to unemployment were thereafter excused. That meant a relief of £1,500,000 a year in the finances of the approved societies.

SICKNESS EXPERIENCE OF WOMEN

There was another matter which was dealt with on a rather different footing. The experience of the sickness of women under the scheme had been found to exceed expectations so that on an actuarial basis the scheme was unable to maintain the benefits it was originally designed to maintain. Action was taken to protect the finances of the scheme by reducing the benefits to women to the amount which actuarially the scheme was capable of maintaining. That stood on a different basis; it was not directly related to the bad times. The subsequent experience of women's sickness had tended to confirm the forecast that was then made and to justify the reductions as being sound in relation to the actuarial aspects of this scheme, and it was not now proposed to make any further change in the particular matter of women's benefits.

In the health part of the scheme, said Sir Hilton, the structure was underpinned, but at the same time they had protected the highly valued pension rights from any source of interference. All the unemployed were continued in pension rights until the close of the current year, that was until Jan. 1st, 1936. Such was

the state of affairs which was left by the Act of 1932. Speaking on behalf of the Government at the time of the passage of that Act he had said that if and when there was an improvement in national conditions sufficient to make it possible to reverse any part of the then withdrawal of concessions it would be the duty of the Government to again propose concessions of that sort. The review of the decennial period had now been received from the Government actuary. He did not want in any way to exaggerate, but the state of affairs was marked by one clear characteristic, and that was a very great improvement in all those factors of national prosperity which were relevant to the Government of national health insurance and pension schemes.

The optimists of three years had been justified, and within the time of the decennial review they were able financially to reconsider the steps it was necessary to take in order to preserve the solvency of this scheme and protect the benefits of the insured. The unemployment figure, the underlying factor, which was then approximately 2,750,000 on the live register, now stood at approximately 2,000,000. The reduction of 750,000 persons was reflected in the finances of the insurance scheme by this most vital circumstance that the contribution increment available to the scheme between 1932 and 1934—the last year with regard to which he had the figures available—increased by £2,375,000 a year, a most encouraging circumstance and one which enabled them to take a different view of the state of affairs from that which it was necessary to take at the time of the great depression.

CONCESSIONS JUSTIFIED BY NATIONAL PROSPERITY

Another circumstance of very great significance in the general restoration of prosperity was the stabilisation of our national finances and the balancing of the budget. In the present Bill the Government fulfilled their undertaking by dealing with the pensions scheme before the beginning of 1936. They found themselves in a position to go back and to continue in national health insurance those who fell into unemployment from year to year without those limitations which on the previous occasion it was necessary to adopt. The result would be that they would secure to all one and three-quarter years on an average free insurance which was at present secured upon the termination of insurable employment. At the close of that period of free insurance, which everybody had, they dealt with the unemployed in this manner. Subject to a certain qualification, those who were unable to maintain their contributions by reason of unemployment would be maintained in insurance year by year if unemployment continued. Thus, if they were still unable to get work and so pay contributions, then, if unemployment was the cause of their contributions not being paid they would be continued in insurance from year to year indefinitely. (Cheers.) The continuance would not secure health insurance cash benefits. The benefits secured were medical benefit and additional treatment benefits, including institutional benefits of a medical sort.

Viscountess ASTOR asked if maternity benefit was secured.

Sir HILTON YOUNG: No, that is a cash benefit. Pension and medical benefits are secured indefinitely from year to year.

Persons who under the Act of 1932, owing to unemployment, had to have their health insurance benefits discontinued, were they, he asked, to be left out? The number involved in round figures was about 200,000 persons. A certain number had passed out of insurance already, and a certain number would come back again owing to re-employment. It was difficult to estimate how many, but on Jan. 1st next approximately 200,000 would be passing out of insurance for all purposes unless they were helped. He was fortunately now in a position to take power to make transitory regulations under the Bill which would enable him to prevent those who were going out of insurance on Jan. 1st from doing so and to bring all those who had gone out of insurance owing to unemployment back into insurance.

The condition for the continuance of insurance was that there should be ten years of continuous insurance when work ceased. Did this mean that many unemployed would be unable to be continued in insurance because they could not make good? The answer was No. Owing to successive Acts for continuance in insurance all unemployed persons with four years' continuous insurance and 160 contributions had in fact been continued in insurance from year to year. So that, generally speaking, the unemployed would not find any difficulty in fulfilling this qualification. It might be inferred from the actuary's report that not more than 9 per cent. of the 200,000 persons to whom he had referred would fail to qualify under the 10 years' condition. The actuary estimated further that at least half of those would come back to employment within a short time. So that it was only about 5 per cent. of the 200,000 who would fall out of insurance for more than a short period. These would not only be people who were going out because of unemployment, but they would include people going out for different reasons, such as taking up uninsurable employment. But for the most part they would be young people with good prospects of coming back to insurance again. They retained the concession given in respect of pensions under the Act of 1932, that was an additional year of cover for pensions for those whofailed to satisfy the ten years' test but had a four years' record of continuous insurance.

DEALING WITH ARREARS

What could they do, Sir Hilton continued, under the arrears part of the scheme. Fortunately they were now in a position, as it were, to let out the slack they had to take up in 1932, and they were able with the increased contribution income and some financial help to go back to the full excusal of arrears, so that all arrears of contributions due to unemployment would be fully excused and would have no effect at all upon the cash benefits of the unemployed, as it was before 1932 and after 1928. That would mean a very great benefit on the cash side to millions of insured persons—something between 4,000,000 and 5,000,000 persons—and it would also certainly mean an enormous simplification of administration and saving of expense to the approved societies. Arrears for the year 1934–35 due to unemployment would be fully excused.

Mr. E. WILLIAMS: Excusal of arrears does not apply to 1933?

Sir HILTON YOUNG: No to 1934–35, so that for the current year it is retrospective to that extent.

There was another advantage to be derived. Many approved societies made use of surpluses to pay up arrears and so enabled the unemployed to get their cash benefits. Now that they were excusing their arrears those moneys would be released for additional benefits.

It would mean something like £300,000 a year to be released for additional benefits—a by-product of the main scheme. The finances of this proposal were simple. The Actuary's report on the decennial period showed that they could give this continuation of pension rights for the unemployed from year to year indefinitely in the manner he had described, and give it now in view of the existing state of the fund the reserves of which would be adequate until the next decennial period, 1946, and no further money would be required to finance this concession until that period. In 1946 the House could make fresh arrangements for Exchequer contributions to the pension fund, but until that period no fresh finance would be required. He would remind the House that under existing law there would be an automatic increase in the contributions for pensions at the end of the present year of 2*d*. for men, equally distributed between employer and employee and 1*d*. for women. A sum of about £1,500,000 a year was required to finance the excusal of arrears due to unemployment, and this included the much smaller

sum necessary to finance the medical benefits for those who were continued in extended insurance.

The Government proposed to distribute the financial burden between the approved societies and the Exchequer, half being found by the approved societies and half by the Exchequer. They would find about £700,000 or £750,000 each. The form of the finance of the scheme was a pound for pound arrangement between the Exchequer and the approved societies. The approved societies met the burden by a general levy on contributions. The effect was to bring the societies with less unemployment to the assistance of those with more unemployment. For the first year they were able to finance the Exchequer contribution by appropriating a balance from the army, navy and air force fund.

Mr. NEIL MACLEAN said that to the intentions of the Government as explained by Sir Hilton Young he took no exception, but in the opinion of the Labour party more might be done for those to whom the Minister of Health desired to give security of pension and security of benefits.

Mr. GRAHAM WHITE said that the Liberal party welcomed the Bill and they hoped that it might become law quickly with such modifications as might be necessary.

Mr. MORGAN said the House ought to give particular attention to the way in which insured persons were treated. Generally speaking they were treated remarkably well, but there were cases of patients who were treated rather in a "panel" sort of way which the Minister might investigate. He did not know whether these panel doctors had too many patients on their lists, but these poor people had grounds for grumbling when they had to sit for a long time and get no proper treatment at the finish.

The Deputy Speaker (Sir D. HERBERT) said that point could not be developed in this debate.

Mr. LLEWELLYN-JONES said the Minister had referred to the fact that he hoped not only that medical benefit would now be available to all men and women who had gone out through unemployment but that they would also be entitled to the additional treatment benefits. There was reason to anticipate that there might be difficulty in this connexion. The surpluses which would otherwise be available for members of approved societies would naturally be reduced as a result of the contribution of £750,000 a year by the approved societies towards the finance of the Bill. It would then be made more difficult for the societies to give the additional treatment benefits which everyone recognised were essential if medical benefit was to serve the purpose that it ought to serve. Take for instance the case of dental benefit. Unfortunately a large number of societies had already failed, owing to the drop in their reserves, to give any more dental benefit. He hoped that this or some future Government would deal with the situation on broader and more generous lines.

Viscountess ASTOR thought that the Minister should have made a greater provision for maternity benefit. She implored the Government to see whether they could not extend the period for maternity benefit even when the other cash benefits had come to an end.

Mr. JANNER said that the suggested concession on maternity would not cost much money. There was considerable anxiety about insured persons being unable to obtain the right kind of specialist medical and surgical advice and that specialist treatment and diagnostic advice were not available for the insured person. In 1926 a large amount of money was diverted from the fund which was available for the purpose of supplying insurance benefits to those who came within the provisions of the Acts. He was sorry that it had not been found possible to give back a larger proportion of that sum in order to provide additional benefits. Health insurance funds were no longer yielding the same amount of interest as they did formerly and the Exchequer might well be called upon to contribute a larger amount.

Mr. BANFIELD said that hundreds of thousands of people had been looking to the Government to raise the income limit of insurability. If the Government were really going to do something big in the way of national health insurance they might consider this class of people above the £250 a year limit—the small shopkeeper and professional people—who declared that they could never see any reason why they were not given the opportunity to contribute to old age pensions and health insurance.

Mrs. TATE said there was a good deal to be said for Mr. Banfield's suggestion to overhaul the whole matter of national health insurance. She wished that the Minister could grant maternity benefit to the unemployed. The claims of women on the health insurance fund might be less severe if they could know that during a very anxious period in their lives they were still to draw their maternity benefit.

Sir FRANCIS FREMANTLE said that such benefits as this Bill introduced were a hazard banking on the fact that we were probably going to move along the road to prosperity. Honest critics of this Bill would recognise that it could not have been introduced earlier because they were waiting for the report of the actuary and for the statistics from 1925 to 1932 on the working of the insurance system. This Bill had the great advantage of producing a more uniform, sensible and business-like system of administration. It also set up reasonable conditions under which the insurance status could be maintained. He joined with those who wished that it were possible to provide further maternity benefit, but again that was a question of expense, as it was with other benefits, including medical benefit. He wondered if the Minister had it in his mind to bring in during the autumn, and in the last session of this Parliament, that Maternity Bill of which they had heard so much, and whether it would be possible in that measure to make maternity provision for all the insured people. There was also a general feeling in regard to ordinary medical benefit—he was not now speaking of the cash benefit—that it was a hardship that the insured person should have to leave the doctor of his choice, who was used to him, and to whom he was used, and to go to the public assistance doctor, and then later on back to his own doctor. Now that they were accustomed to the panel doctor and public assistance system some arrangement ought to be made which would apply equally to insured and non-insured persons as regarded medical benefit and treatment, and he hoped that there would be such an arrangement before very long.

Mr. CLARKE appealed to the Minister to insert a clause in the Bill to provide for the insurance of boys and girls between the ages of 14 and 16. At present, he said, there was no organised provision for the medical treatment of boys and girls between these ages. Secondly, this was a critical period of growth when neglect might cause irreparable damage. Boys and girls were subject to considerable strain when they first entered employment. Thirdly, the examinations by certifying surgeons under the Factory Acts were confined to a section of the juvenile population and were merely designed to prevent boys and girls with health defects from entering industrial employment; there was no provision for remedying any of the defects discovered. Fourthly, unemployed boys and girls joining junior instruction centres and classes might be treated by school medical officers and it seemed anomalous that the unemployed in this respect should be provided for while the employed were not.

Dr. O'DONOVAN said that Parliament entrusted a great deal of the financial help of the sick to the approved societies; but such societies once they had the millions of the public in their custody husbanded those millions with a care that had the full approval of the Treasury, but was often a source of grave disquiet to the doctors and to the sick throughout the country. Ordinarily a medical certificate was given in good faith to a sick person, but the impish ingenuity of the skilled advisers of the approved

societies could see many outlets for the unwary disbursement of public money through medical certificates written in good faith but without lawyer-like skill; and while those difficulties were being cleared up by leisurely correspondence the sick person often waited weeks for the financial assistance that was so pressingly necessary to him. When the sickness became a matter of litigation so that the approved societies and the insurance companies, both having skilled professional advisers, were set in opposition to one another the needy sick person might wait weeks and months for any assistance from either side until the eminent lawyers and specialists, with the help of the judiciary had come to some conclusion and then only were his needs met. It was occasionally possible for the two sides to come to some temporary compromise as to which should pay in the interim, but he noticed in his work, and many of his brothers also noticed, that when the House of Commons wished to help the sick instantly the skilled professional advisers of approved societies carrying out their very proper work of the custody of their funds, put a very high barrier between the poor sick man and the money that he might have.

They had been told that it would be advisable for additional benefits to be granted. It had been suggested that these additional benefits might be maternal benefits and dental benefits, but he would put in a prior plea before these that specialist advice be made more available through the Ministry of Health for panel doctors up and down the country. It was not dignified or proper that this service should depend for its ultimate efficiency upon the free advice of consultants up and down the country. The more the panel system was improved and extended and the more medical benefits were extended among the poor people, the more patients would be found to need specialist advice. The out-patient departments of all the great hospitals were being more and more crowded by patients sent to them in pursuit of their proper aims by doctors whose work was safeguarded and increased by this amending Bill. Before they considered dental benefit they might turn their minds to the extension of maternity benefit.

There was, said Dr. O'Donovan, one other matter to which he would like to refer. If the age-groups of population in this country were to change greatly the actuarial provisions for extended benefit would be rendered very shaky. If they were to have therefore through a fall in the birth-rate an increasing aged population then their figures that night were based upon a shifting basis. He would very much like to hear from the Minister if the change in the birth-rate and the change in the age-groups of the population, which were referred to repeatedly in specialist papers on this matter, were constantly and frequently under review by his actuarial advisers.

CONSOLIDATION OF HEALTH INSURANCE ACTS PROMISED

Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replying to the debate, said that with regard to the question of the gap in insurance between the ages of 14 and 16 he was in sympathy with the demand for medical benefit. They would all like to see that gap removed, but they had not the finances to do it at the moment, and they must leave something for posterity. The Minister authorised him to say that it was the intention of the Government to consolidate the Health Insurance Acts as soon as possible. That would be to the benefit of everybody.

The Bill was read a second time and committed to a Committee of the whole House.

HOUSE OF COMMONS

WEDNESDAY, JUNE 5TH

Malaria in Ceylon

Captain PETER MACDONALD asked the Secretary of State for the Colonies, whether his attention had been called to the fact that the total number of deaths from malaria in Ceylon amounted to 82,637 for the six months November to April; and what special steps had been taken by the government of Ceylon to deal with this emergency.—Sir PHILIP CUNLIFFE-LISTER replied: I have not yet received reports from the Governor of Ceylon covering the period referred to in the question. As regards the special steps taken by the Government of Ceylon, I would refer my hon. friend to the full reply which I gave on March 27th. Since that reply was given the special officer whom I then mentioned, Colonel Gill, has arrived in Ceylon and is engaged in carrying out his investigations.

Play-streets for Children

Mrs. RUNGE asked the Minister of Transport, if he would consider taking steps to effect the closing of certain streets to traffic in the poorer districts of the towns for two hours an evening in the summer-time, so that the children could play in them without risk of accident.—Mr. HORE-BELISHA replied: I have, in collaboration with the Metropolitan boroughs of Southwark and Paddington, arranged, by way of experiment, for six streets to be set aside as play streets for children and I have given notice of my intention to make regulations closing these streets to through traffic.

Medical Examinations at Barlinnie Prison

Mr. LEONARD asked the Secretary of State for Scotland if he was aware that prisoners who had been admitted to Barlinnie about 1 P.M. were, after reception formalities, placed separately in extremely small cubicles and frequently kept there for several hours pending examination by the medical officer; that the cubicles referred to had no conveniences necessary for such extended occupancy; and if he would ensure that in future medical examinations would be expeditiously made or more suitable accommodation provided.—Sir GODFREY COLLINS replied: Prisoners received at Barlinnie about 1 P.M. are kept in small cubicles until medically examined. Untried prisoners are examined at 2 P.M., but the examination of convicted prisoners is sometimes deferred until 3.30 P.M. I am satisfied that there is no undue delay in conducting the medical examinations, and that otherwise the arrangements are adequate.

Scabies at Barlinnie Prison

Mr. LEONARD asked the Secretary of State for Scotland how many long-sentence prisoners in Barlinnie prison during the last 12 months had contracted scabies after completing several months of their sentence through contact with dirty closet seats; and if he would take steps to ensure that the cleansing of closets was more effectively performed.—Sir GODFREY COLLINS replied: During the past twelve months no prisoner in Barlinnie Prison has contracted scabies from the cause mentioned. The accommodation in question is subjected daily to a scrupulous cleansing and is regularly inspected.

Mr. LEONARD: If I give the right hon. gentleman some details will he go further into the matter?

Sir G. COLLINS: Most decidedly.

THURSDAY, JUNE 6TH

National Health Insurance (Ophthalmic Benefit)

Sir JOHN WALLACE asked the Minister of Health, whether his department had now considered the final report of the ophthalmic benefit joint committee; and whether he proposed to introduce legislation on the basis of the Report.—Sir HILTON YOUNG replied: The Report to which my hon. friend refers is still under consideration. I regret, therefore, that I am not yet in a position to reply to the second part of the question.

Deaf and Dumb

Dr. ADDISON asked the Minister of Health whether he was prepared to introduce legislation giving to deaf and dumb persons similar benefits as well as facilities for training as were afforded to the blind under the Blind Persons Act.—Sir HILTON YOUNG replied: No, Sir. I am not satisfied that there is need for such legislation.

Inquiry into Nutrition of Children

Dr. ADDISON asked the Minister of Health whether he would publish the findings of the memorandum on the nutrition of children, prepared by the Economic Advisory

Council last year and any other Reports on kindred subjects submitted to his department which had led to the appointment of the special committee to report on the nutrition of the people, which had recently been announced.—Sir HILTON YOUNG replied: As regards the memorandum of the Economic Advisory Council, I can only refer to the reply given to the right hon. Member by the Prime Minister in February (see THE LANCET, Feb. 23rd, p. 466). As regards the rest of the question, the right hon. Member appears to be under some misapprehension. The Committee to which he refers is a standing advisory committee to assist myself and my right hon. friend the Secretary of State for Scotland with advice on problems of nutrition. It takes the place of a smaller and purely technical advisory committee which was appointed in 1931 by the right hon. Member for Wakefield (Mr. Greenwood) to perform the same service for the Ministry of Health alone.

Dr. ADDISON: Will the right hon. gentleman communicate to the House the information which led him to make this enlargement of the committee and ask the committee to conduct these wide researches?

Sir HILTON YOUNG: I am always prepared on appropriate occasions to communicate all such information to the House.

Price of Milk Supplied to School-children

Mr. THOMAS WILLIAMS asked the Minister of Agriculture the average price paid to producers and retailers for all milk sold to school-children.—Mr. ELLIOT replied: Milk supplied under the Milk in Schools arrangements brings to the producer who sells by wholesale the pool price for his region, less carriage and handling charges. The average pool price for the period from the inception of the arrangements up to the end of April was 13·59*d.* per gallon. The producer-retailer supplying milk for schools receives the actual wholesale price plus a distribution allowance of 6*d.* per gallon, and is charged the licensed retailers' contribution under the Milk Marketing Scheme. The average wholesale price for the seven months up to the end of April was 1*s.* 4·43*d.* per gallon, and the average producer-retailers' gross contribution was 2·51*d.* per gallon. The ordinary retailer's margin for distribution of school milk is also 6*d.* per gallon.

Burning Coal Bings

Mr. NEIL MACLEAN asked the Secretary of State for Scotland whether he was aware of the complaints made in Lanarkshire against the coal bings which were burning there and because of the fumes which were a menace to the health of the people; and what action he proposed to take against the parties responsible.—Sir GODFREY COLLINS replied: The matter referred to is primarily one for the local authority under the Public Health (Scotland) Act, 1897. Only one complaint has been made to the Department of Health for Scotland in regard to burning bings in Lanarkshire. As a result of inspection the owners of this bing have undertaken to consider what action can be taken to extinguish the fire.

Alleged Ill-treatment of Defective Boy

Mr. BURNETT asked the Secretary of State for Scotland whether his attention had been drawn to a case at the Aberdeen sheriff court, on May 23rd, in which a farmer was convicted of ill-treatment of a boy of 18 under his charge on licence from Rossie Farm School, Angus; whether he was aware that the boy was beaten on the body and legs with fists and with a stick, kicked on the body and legs, and submerged in a trough of water, and that the boy was stated to be on the border-line of a mental defective; and what steps were being taken to ensure that boys sent out from a reformatory on licence were protected from such brutality.—Sir G. COLLINS replied: My attention has been drawn to this deplorable case and to the particulars stated. The employer has been convicted on the charge of assault and sentenced to two months' imprisonment. With regard to the last part of the question, the managers of approved schools maintain close touch with the young persons who are released on licence. In this case I am informed that the headmaster of the school wrote to the boy six times during the seven months period of the boy's employment at the farm. Only one reply was received and it contained no complaint. Various reports were received from the employer none of which contained any indication of serious difficulty. The headmaster of this school, who is a man of outstanding reputation in reformatory school work, has placed 1500 boys in satisfactory employment in the past 35 years and he has never before had a case such as this. I am having the records of employment of young persons released on licence from approved schools during the last ten years specially examined, in order to ascertain whether there is any general ground for instituting a more thorough and systematic supervision over such employments.

Birth-rate: Effect on Social Services

Dr. O'DONOVAN asked the Minister of Health what was the nature of the personnel and organisation within his department charged with the duty to watch and advise him upon the effects of the trend of the birth-rate upon housing and other social services in being or under discussion for which he was or might be responsible to Parliament.—Sir HILTON YOUNG replied: As my hon. friend is aware, the Registrar-General, whose Department is within my ministerial responsibility, has under continual study the nature and direction of all the elements of population movement, the handling of which calls for general statistical experience, prior to their application to particular administrative problems. The Registrar-General is in frequent consultation with the principal officers of the Department with a view to the development of useful lines of inquiry and the satisfaction of particular needs; and data as to the general population prospects and the results of special studies are made available to them either in departmental papers or in the Registrar-General's standard publications. This material is applied to administrative questions in the case of any particular subject matter by the officers by whom I am advised in that connexion.

Housing Bill and the Minimum Size of Rooms

Mr. JOEL asked the Minister of Health whether, in view of the proposal in the Housing Bill under which subsidies would be granted towards the construction of houses, he proposed to suggest to local authorities receiving such subsidy that bedrooms of less than 70 square feet should not be constructed, in view of the fact that under the Bill in question such rooms were only assessed at being fit for occupation by a child under 10 years of age.—Sir HILTON YOUNG replied: No, Sir. The considerations affecting the standard of re-housing accommodation provided by local authorities and those relating to the penal standard proposed in the Housing Bill are quite different and the two standards cannot appropriately be correlated in the manner proposed.

WARWICKSHIRE AND COVENTRY MENTAL HOSPITAL. A large nurses' home has been opened at this hospital, providing accommodation for 21 sisters and 95 nurses. The cost has been £39,000.

EDUCATION FOR GAS WARFARE.—Mr. Davidson Pratt, F.I.C., secretary of the Association of British Chemical Manufacturers, gave a lecture last Wednesday to the British Science Guild in which he urged that the civil population should be instructed in methods of defence against gas attacks in war, more especially from the air. Gas, he said, had a devastating effect on the morale of people ignorant of its properties and uninstructed in methods of defence, and a country's lack of preparation in this respect might well induce an enemy to attempt a speedy victory. Reduced to its elements, the scheme of defence required that the general public should keep out of contact with gas, whether as liquid or vapour, by staying in gas-protected rooms till the raid is over and the area cleared up, and that there should be an organisation for the de-contamination of the areas affected and the first-aid treatment of those who have been exposed to gas. The success of the scheme would depend entirely on the behaviour of the population, and it was therefore important that people should be imbued with the proper psychological reaction. Mr. Pratt believes that the destructive power of gas attack from the air has been grossly exaggerated.

MEDICAL NEWS

University of Oxford

On June 8th the degree of doctor of medicine was conferred on C. Raymond Greene, and of bachelor of medicine on J. E. G. Pearson.

University of Cambridge

The degree of Sc.D. has been conferred on Mr. Leslie Harris, D.Sc., director of the Medical Research Council's nutritional laboratory at Cambridge University.

Dr. C. H. Whittle has been appointed as delegate of the University to the ninth international congress of dermatologists which is being held in Budapest in September.

University of London

At recent examinations the following candidates were successful :—

THIRD EXAMINATION FOR M.B., B.S.

Honours.—J. R. Forbes (*a*), Guy's; G. W. Hayward, (*a, b, c, d, e, Univ. Medal*), St. Bart.'s; G. W. Hearn (*e*), St. Thomas's; Edward McLellan (*d*), St. George's; and James Marshall (*a, e*), London.

(*a*) Distinguished in medicine; (*b*) distinguished in pathology; (*c*) distinguished in forensic medicine and hygiene; (*d*) distinguished in surgery; (*e*) distinguished in obstetrics and gynæcology.

Pass.—E. C. Atkinson, St. Bart.'s; H. H. Atkinson, Univ. Coll.; Barbara Bailey, Roy. Free; T. A. Baldwin, Univ. Coll.; E. B. D. Bangay and D. S. D. Barber, St. Bart.'s; G. W. Bender, St. Mary's; Brenda G. Billings, Roy. Free; G. L. Bohn, St. Bart.'s; A. P. Booth, London; P. I. Boyd, Univ. Coll.; D. J. T. Brinkworth, Middlesex; I. A. Cathie, Guy's; R. M. Clarke, Middlesex; C. W. J. Claydon, King's Coll.; F. T. Clive, St. Thomas's; V. H. J. Davies, Charing Cross; D. W. A. Degazon, Univ. Coll.; Audrey P. Dence, Roy. Free; Leslie Dexter and P. E. Dipple, St. Bart.'s; Lynette Dowsett, Roy. Free; F. C. Durbin, St. Thomas's; H. A. Eason, London; Evelyn J. Forgan, Roy. Free; J. F. A. Forster, Guy's; Sheila M. Franklin and Joyce C. Goodchild, Roy. Free; I. H. Griffiths, Middlesex; W. E. Hadden, St. Thomas's; Marjorie K. Hall, Roy. Free; P. G. F. Harvey, St. Bart.'s; D. A. B. Hopkin, St. Mary's; A. W. J. Houghton and P. W. Houghton, St. Bart.'s; I. H. Jenkins, St. Thomas's; C. McK. Johnston, King's Coll.; A. E. Jones, Guy's; D. M. Jones, St. Bart.'s; J. G. Jones and W. L. Kerr, King's Coll.; Abraham Lasnick, Univ. Coll.; J. B. H. McArthur, Guy's; J. J. McCann, St. Thomas's; Arnold Moore, Univ. Coll.; Elizabeth C. Morris, Roy. Free; R. B. Morton, St. Thomas's; R. F. Mowll, King's Coll.; H. E. Offord, St. George's; E. D. Page, St. Mary's; H. S. Pasmore, Univ. Coll.; Geoffrey Phipps, St. Thomas's; D. S. Piper and A. G. Potts, Guy's; Marjorie A. Powys, Roy. Free; V. B. Reckitt, Guy's; A. H. W. Roffey, King's Coll.; K. B. Rogers, St. Mary's; C. G. Roworth, J. G. Sheldon, and R. H. D. Short, Univ. Coll.; Frank Summers, King's Coll.; W. H. Summerskill, Guy's; Margaret E. Sutherland, Roy. Free; B. A. Thomas and D. M. Thomson, St. Bart.'s; W. F. Townsend-Coles, London; Enid L. Weatherhead, Roy. Free; F. H. Weston, Guy's; and C. W. K. Willard, Univ. Coll.

The following students have passed in one of the two groups of subjects :—

Group I.—Bernard Cates, St. Bart.'s; Robert Cox, Westminster; Kathleen Craddock, Roy. Free; J. V. Dacie, King's Coll.; A. M. Desmond, London; W. J. M. Evans, Univ. Coll., Cardiff; H. C. H. Higginson, St. Bart.'s; C. E. W. Hoar, Westminster; Tobias Levitt, Middlesex; W. N. Mann, Guy's; R. L. Moody, St. Thomas's; Margaret J. Moore, Roy. Free; C. J. S. O'Malley, St. Thomas's; G. H. C. Ovens, St. Mary's; F. D. Paterson, St. Mary's; Millicent I. Rowland, Roy. Free; J. K. Samuel, St. Thomas's; Catherine M. Whitestone, Univ. Coll.; and B. L. E. Wong, Guy's.

Group II.—Mary J. Bartlett and Beatrice A. Blake, Roy. Free; C. J. F. Blumenthal, Guy's; Margaret Brodigan and A. M. Cusack, Univ. Coll.; Dorothy S. R. Drew, Roy. Free; J. A. C. Franklin, St. Thomas's; L. D. B. Frost, St. Bart.'s; Philip Glazer, King's Coll.; J. R. Hill, St. Bart.'s; J. H. Lawrence, Univ. Coll.; J. I. Lesh, St. Thomas's; H. M. McGladdery, St. Bart.'s; Margaret I. McHaffie, Roy. Free; J. I. C. Mason, St. Bart.'s; Margaret J. Montrose, Roy Free; W. L. Ogle, Guy's; E. U. H. Pentreath, St. Bart.'s; J. B. Phillips, Univ. Coll., Cardiff; Jean Ross, Univ. Coll.; D. J. Sheehan, St. Bart.'s; B. McN. Truscott, Middlesex; and C. E. G. Wickham, St. Thomas's.

Semon Lecture

This annual lecture will be delivered on Thursday, Oct. 31st, at 5 P.M., at the Royal Society of Medicine, 1, Wimpole-street. The lecturer, Sir StClair Thomson, has chosen as his subject: The Defences of the Upper Respiratory Tract.

Teddington Memorial Hospital

Lady Dawson of Penn recently opened this hospital, the foundation-stone of which was laid by Lord Dawson five years ago. The hospital began in a two-roomed villa some 60 years ago.

Royal College of Surgeons of England

At the primary examination for the fellowship held from May 28th to June 8th, 222 candidates presented themselves, of whom 84 were approved and 138 were rejected. The following are the names and medical schools of the successful candidates :—

D. A. Andersen, M.B. Lond., Middlesex and Univ. Coll; A. G. Apley, Univ. Coll.; D. W. Ashcroft, M.B. Otago, Middlesex and Univ. Coll.; H. C. Barry, Sydney and Oxford; A. D. Bateman, St. Bart.'s; S. A. Beards, M.S. Lond.; T. Beath, M.D. Toronto, Univ. Coll.; J. P. Bentley, King's Coll.; D. Bhatia, M.B. Punjab, Univ. Coll.; R. D. Blachford, Guy's; J. G. Bonnin, M.B. Melb., Middlesex and Univ. Coll.; N. J. Bonnin, M.B. Adelaide, Middlesex and Univ. Coll.; Janet E. Bottomley, Lond. School of Medicine for Women; J. F. Bourdillon, Oxford and St. Bart.'s; W. S. Campbell, M.B. Belf.; W. M. Capper, M.B. Lond., St. Bart.'s; S. R. Chandra, M.B. Calcutta, St. Bart.'s; J. M. P. Clark, M.B. Leeds; C. S. Day, M.D. Toronto, Manch. and Middlesex; T. M. J. d'Offay, M.B. Edin., Edin. and Sheff.; E. G. Dolton, Camb. and St. Thos.; Margaret M. Ferguson, M.B. Manch.; R. W. S. Fox, M.B. Melb., Middlesex; E. H. W. Gifford, M.B. N.Z., Middlesex; R. G. Gilbert, M.B. Lond., St. Bart.'s and Guy's; M. Gordon, M.R.C.S., Univ. Coll. and Middlesex; A. S. Gray, M.B. Otago, Univ. Coll.; A. O. Green, M.D. Melb., Middlesex; M. H. Harmer, Camb. and St. Bart.'s; R. F. E. Harrington, Middlesex and Univ. Coll.; J. Henderson, M.B. Durh., Middlesex; J. F. Heslop, M.B. Manch.; M. J. Horgan, M.B. Dubl., St. Mary's; R. A. Hughes, M.B. Liverp.; L. A. Ives, St. Bart.'s; J. I. P. James, Univ. Coll.; C. C. Jeffery, M.R.C.S., London; H. Kander, St. Mary's; M. B. Khan, M.B. Leeds, Univ. Coll. and Middlesex; D. Landsborough, London; C. H. W. Lawes, M.B. Sydney, Middlesex; A. G. Leigh, M.B. Liverp.; J. C. Luke, M.D. McGill, Middlesex, St. Bart.'s, and Univ. Coll.; K. Lumsden, M.R.C.S., St. Bart.'s and Middlesex; A. N. McCrea, M.B. Camb., St. Mary's; O. T. Mansfield, Middlesex; R. W. Mason, Camb. and Middlesex; S. K. Menon, M.B. Bombay, Univ. Coll.; A. D. Messent, St. Bart.'s; A. Miller, M.B. Camb., St. Mary's; W. G. Mills, Birm.; T. Moore, M.B. Durh.; M. P. Morel, M.R.C.S., St. Bart.'s and St. Mary's; J. Moroney, Liverp.; D. V. Morse, St. Bart.'s; A. Mukerji, M.B. Calcutta, Univ. Coll.; J. H. Mulvany, M.R.C.P. Lond., King's Coll.; C. J. B. Murray, M.R.C.S., Middlesex; J. D. N. Nabarro, Univ. Coll.; A. A. K. Naqsh-Bandi, Punjab and London; D. P. O'Brien, M.B. N.Z., Otago; H. Park, M.B. Edin., St. Mary's and Univ. Coll.; R. A. Piachaud, M.R.C.S., Univ. Coll. and Middlesex; C. G. Rob, Camb. and St. Thos.; A. G. Ross, M.B. Belf., St. Mary's and Middlesex; R. H. Shah, M.R.C.S., Univ. Coll.; C. J. C. Siggers, M.R.C.S., Guy's and Middlesex; B. N. Sinha, M.R.C.S., Univ. Coll.; A. F. Smith, Oxford, St. Mary's and London; Margaret D. Snelling, London School of Medicine for Women; H. Spencer, St. Mary's; R. A. Stephen, M.D. Aberd.; J. C. Stewart, M.B. Melb., Middlesex; F. E. Stock, King's Coll.; H. Treissman, M.B. Lond., M.R.C.S., St. Bart.'s; O. J. Vaughan-Jackson, B.M. Oxon., London; E. Vernon, M.B. Manch.; Phyllis Wade, M.B. Lond., London School of Medicine for Women and Univ. Coll.; N. J. Weinberg, M.B. Wits'rand, Lond. and Middlesex; W. F. Whelton, M.B. Irel., Middlesex; Aileen E. M. Whetnall, King's Coll.; G. Williams, M.R.C.S., St. Mary's and St. Thos.; R. A. M. Yeates, M.B. Sydney, Middlesex and Univ. Coll.; F. R. Yousry, M.B. Cairo, Univ. Coll. and Middlesex.

London Hospital Medical College

On Thursday, July 11th, at 3 P.M., Mr. John Masefield, O.M., will distribute the prizes to the students of the London Hospital medical college and dental school.

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty on June 3rd Stanley Alstead (Glasgow), Richard Makram Ebeid (Egypt), and Walter Martin Nichols (Glasgow) were admitted to the fellowship.

Royal Society of Tropical Medicine and Hygiene

The annual general meeting of this society will be held on June 20th at Manson House (26, Portland-place, W.), at 8.51 P.M., when the new president, Sir Arthur Bagshawe, director of the Bureau of Hygiene and Tropical Diseases, will be inducted. The Manson medal will be presented to Dr. J. W. W. Stephens, F.R.S., emeritus professor of tropical medicine in the University of Liverpool, and the Chalmers medal to Dr. W. H. Taliaferro, professor of bacteriology in the Ogden School of Science, Chicago. Dr. S. Somasundram, physician to the Kandy Hospital, Ceylon, will afterwards give a demonstration of temperature charts showing the action of atebrin musonate in malaria. Sir John Megaw will open a discussion on phus fever in the tropics, and other speakers will include . William Fletcher and Mr. A. Felix, D.Sc.

Dr. Jules Gonin, whose death is reported, occupied the chair of ophthalmology at Lausanne and became famous as the inventor of the only successful treatment for detached retina.

Sir James Barrett, consulting surgeon to the Victorian Eye and Ear Hospital, and vice-chancellor of the University of Melbourne, has been appointed president-elect of the British Medical Association for 1935–36. Sir Richard Stawell, who was to have presided over the Association's Melbourne meeting in September, died on April 18th.

THE tenth annual Macalister lecture will be delivered at the National Temperance Hospital on Thursday, June 20th, at 9 P.M., by Mr. Herbert J. Paterson, C.B.E., who will take for his subject "Medicine and Magic." Medical practitioners and their friends are invited to the lecture, at which light refreshment will be served, and communications should be addressed to the secretary, National Temperance Hospital, Hampstead-road, London, N.W.1.

International Association for Preventive Pædiatrics

The fifth conference of this association (the medical section of the Save the Children International Union) will be held at Basle, under the presidency of Prof. Wieland, on Sept. 20th and 21st. The subjects to be discussed are the avoidance of internal and external infection in children's hospitals, and the prevention of tuberculosis in schools. The secretary's address is 15, rue Lévrier, Geneva, Switzerland.

A Tour to Jugoslavia

La Nomade (a medical touring society) is organising a motor tour for medical men and their friends, in which the principal towns, spas, and watering-places of Jugoslavia will be visited. Basle will be the starting-point for the expedition on August 21st, and Jugoslavia will be reached by way of Zurich, Innsbruck, and Carinthia, the party arriving in Ljubljana on the 25th. The return journey will be through Trieste (Sept. 5th), the Italian lakes, and the St. Gothard pass, and the tour will end at Basle on Sept. 8th. The cost will be 2900 French francs, and further particulars may be had from Dr. Cavro, 15 rue Jules Ferry, Paris XIII.

British Association of Radiologists

This association, whose formation was described in our issue of May 4th (p. 1060), is holding its first annual meeting in Birmingham on July 12th and 13th under the presidency of Dr. J. F. Brailsford. After the presidential address a visit will be paid to the new hospital building, and in the afternoon an exhibition of radiograms of bones and joints will be held in the anatomical department of the University. The lord mayor of Birmingham will be the association's guest of honour at dinner in the evening. Next day will be devoted to communications and discussions on antenatal radiology (Dr. R. E. Roberts and Dr. L. A. Rowden), pre- and post-operative radiation for breast cancer (Dr. Douglas Webster), and spondylitis adolescens (Dr. Gilbert Scott). Proposal forms for membership and other information may be had from Dr. S. Cochrane Shanks (hon. secretary), 68, Harley-street, London, W.1.

Congresses in Russia

The date of the fifteenth International Physiological Congress, which is to take place in the U.S.S.R. under the presidency of Prof. Ivan Pavlov, has been definitely fixed for August 9th. From then until the 16th the sessions will be held in Leningrad; on the 17th and 18th the Congress will sit in Moscow. Five hundred delegates from other countries, including a hundred from Great Britain, have signified their intention to be present. The committee should be addressed at Leningrad, Main P.O., Box 13. It may also be noted that the Physiotherapeutic Congress will be held in Odessa from August 25th to 30th, particulars of which may be had from Dr. Shimshelevicz, B. Vorobinsky 7, Flat 5, Moscow 28. Information about travel arrangements and expenses for both congresses obtainable from Intourist, Ltd., Bush House, Londo W.C. 2.

Beit Memorial Trust

Prof. T. R. Elliott, F.R.S., director of the medical unit at University College Hospital, has been appointed a trustee of the Beit memorial fellowship for medical research in place of the late Sir John Rose Bradford.

Canterbury's New Hospital

The Duke of Kent will lay the foundation-stone of this hospital on July 12th. A sum of over £30,000 has still to be raised if the institution is to start clear of debt.

Lewes Victoria Hospital

The ordinary income for last year at this hospital was £3334 which was just sufficient to meet the expenditure. The penny fund has realised £984 during the year and in 11 years it has brought in well over £9000.

Donations and Bequests

Dr. Ernest Ofenheim, whose death we reported on March 9th, among other bequests to the St. John's Hospital, Lewisham, left £300 on trust to pay in perpetuity 1*d*. every Sunday morning to each patient in the hospital between the ages of 2 and 16.

Princess Beatrice Hospital, London

A campaign is to be inaugurated to raise £100,000 for this hospital, and £2000 has already been contributed by Mr. E. W. Meyerstein. The hospital is full to overflowing, and has no reserve beds for emergencies, while the accommodation for nurses is so unsuitable that the General Nursing Council cannot approve the hospital permanently as a training school.

Honour for a Medical Man

Dr. V. H. Wyatt Wingrave of Lyme Regis is to receive the freedom of Coventry, where he was born in 1858. Formerly pathologist to the Central London Throat and Ear Hospital, and dean of its medical college, Dr. Wingrave has for many years continued his pathological, literary, and archæological work in face of grave physical disability. He is the author (with the late Sir William Milligan) of "Diseases of the Ear" and of other medical works, and until lately has been hon. curator of the Lyme Regis museum which he founded some fifteen years ago. Because of the state of Dr. Wingrave's health the mayor of Coventry will travel to Lyme for the ceremony.

Royal Sanitary Institute

The annual health congress of this institute will be held at Bournemouth from July 15th to 20th under the presidency of Lord Malmesbury. Subjects for discussion include the new Housing Bill, rural water supplies, the future of the school medical service, open-air swimming baths, and town and country planning. Dr. Thomas Carnwath, deputy chief medical officer of the Ministry of Health will preside over the section of preventive medicine, and Dame Louise McIlroy, as president of the section of maternity, child welfare and school hygiene, will speak on diet deficiency in pregnancy. There will be a health exhibition in connexion with the congress. The secretary of the institute may be addressed at 90 Buckingham Palace-road, London, S.W.

Union Thérapeutique

The general assembly which will meet at the Paris Faculty of Medicine on Wednesday, Oct. 9th, will deal mainly with three topics: the male hormone introduced by Prof. G. Laroche, splanchnic surgery in arterial hypertension by Prof. René Fontaine (Strasbourg), antimonial compounds in therapy by Dr. J. La Barre (Brussels). The afternoon session, held jointly with the Société de Thérapeutique, will consider physiochemical and glandular equilibrium in the treatment of visceral spasms (Prof. Pende, Genoa); spasmogenic substances and their antagonists (Prof. Bürgi, Berne); sedative treatment of spasms (Dr. J. Decourt); and physiotherapy of spasms and visceral pains (Dr. Delherm). Inquiries should be addressed to the secretary-general, Dr. G. Leven, 24, rue Téhéran, Paris (8). The Union is an international association of doctors and biologists specially occupied with questions of treatment, the president being Prof. Maurice Loeper (Paris) and the British vice-president, Dr. E. P. Poulton.

Wembley Hospital

This hospital is planning a £95,000 extension scheme which will double the number of beds and provide new electrical, X ray, and other departments and a new nurses' home. The hospital has had to deal with over 10,000 road accidents cases during the last six years.

Bute Hospital, Luton

Miss Louisa Lye has left £24,000 and her Brighton residence to this hospital to establish a convalescent home to be known as the Thomas Lye Convalescent Home. She has bequeathed a further £2000 to endow a bed or beds in memory of her parents.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, June 18th.
General Meeting of Fellows. 5.30 P.M.
Psychiatry. 8.30 P.M. Prof. C. S. Myers, F.R.S., and Dr. A. Macrae: Vocational Guidance.
THURSDAY.
Dermatology. 5 P.M. (Cases at 4 P.M.) Dr. H. W. Barber: 1. Lichen Spinulosus with Cicatricial Alopecia.
FRIDAY.
Obstetrics and Gynæcology. 8 P.M. Miss E. H. Lepper: The Ætiology of Fibrocystic Tumours of the Ovary. Mr. Gordon Luker: Decidual Cast in Suspected Ectopic Gestation. Dr. Chassar Moir: The Merits and Demerits of Oxytocic Drugs in the Post-partum Period.

EUGENICS SOCIETY.
TUESDAY, June 18th.—5.15 P.M. (Rooms of the Linnean Society, Burlington House, Piccadilly, W.), Dr. T. Drummond Shiels, Mr. C. V. Drysdale, D.Sc.: Are the Principles of Eugenics most favoured by a Socialist or Capitalist State of Society?

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 26, Portland-place, W.
THURSDAY, June 20th.—8.15 P.M., Annual General Meeting. Dr. S. Somasundram: Demonstration of Temperature Charts illustrating the Action of Atebrin Musonate in Malaria. Sir John Megaw, Dr. W. Fletcher, and Mr. A. Felix, D.Sc.: Typhus Fever in the Tropics.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, June 17th, to SATURDAY, June 22nd.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. All-day course in urology.—PRINCE OF WALES'S HOSPITAL, N. All-day course in medicine, surgery, and the specialities.—LONDON LOCK HOSPITAL, Dean-street, W. Afternoon course in venereal diseases.—Courses and clinics arranged by the fellowship are open only to members and associates.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, June 20th.—2 P.M., Dr. Donald Paterson: Artificial Feeding of Infants. 3 P.M., Dr. Signy: Pathological Demonstration.
Out-patient clinics daily at 10 A.M. and ward visits (except on Wednesday) at 2 P.M.

NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W.
THURSDAY, June 20th.—9 P.M., Mr. Herbert Paterson: Medicine and Magic. (Macalister lecture.)

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.
THURSDAY, June 20th.—5 P.M., Mr. Joseph Needham, Sc.D.: Problems of Chemical Embryology.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.
WEDNESDAY, June 19th.—3 P.M., Visit to High Wood Hospital for Children, Brentwood. (Dr. A. G. L. Reade.)

INSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.
WEDNESDAY, June 19th.—3 P.M., Dr. H. Crichton-Miller: Impotence. 4.30 P.M., Dr. Cedric Shaw: Differential Diagnosis.

INSTITUTE OF CHILD PSYCHOLOGY.
WEDNESDAY, June 19th.—6.15 P.M. (Friends House, Euston-road, N.W.), Miss M. Kirschner: Physical Culture and Self-realisation. 8.15 P.M., Dr. Margaret Lowenfeld: Child's Play and Man's Work.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.
SUNDAY, June 16th.—10.30 A.M. (Newcastle General Hospital), Dr. G. F. Duggan: Surgical Cases.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, June 18th.—3.30 P.M. (General Hospital), Mr. Scott Mason: Diagnosis and Treatment of Carcinoma of the Colon.
THURSDAY.—4 P.M. (Medical Lecture Theatre, University), Prof. K. Douglas Wilkinson: Acute Rheumatism and its Results. (Last Ingleby lecture.)
FRIDAY.—3.30 P.M. (Queen's Hospital), Mr. D. J. Evans: Diseases of the Nasal Sinuses.

Appointments

ALLIN, E. S., M.D., has been appointed Senior Resident Officer to the Royal Gwart Hospital, Newport, Mon.
BEATON, NEIL, M.B. Glasg., F.R.C.S. Edin., Resident Surgical Officer at the King George Hospital, Ilford.
BEATTIE, JOHN, M.D. Camb., F.R.C.S. Eng., M.C.O.G., Assistant Physician-Accoucheur to St. Bartholomew's Hospital.
BEHRMAN, SIMON, B.Sc., M.R.C.P. Lond., Registrar to the National Hospital for Diseases of the Nervous System.
BIRD, J. D. H., M.B. Lond., F.R.C.S. Eng., Resident Assistant Surgical Officer and Casualty Officer at the King George Hospital, Ilford.
FOY, J. W. H., M.R.C.S. Eng., D.M.R.E., Senior Assistant Medical Officer to the Radiological Department of the Manchester Royal Infirmary.
GOVER, W., B.M. Oxon., Honorary Physician to the Royal East Sussex Hospital.
KREMER, MICHAEL, M.D., M.R.C.P. Lond., Assistant Registrar to the National Hospital for Diseases of the Nervous System.
LANGLEY, G. F., M.B. Brist., F.R.C.S. Eng., Senior Resident Medical Officer at the Bristol General Hospital.
LAUNER, N., M.B. Manch., Medical Registrar to Ancoats Hospital, Manchester.
MILLAR, A. U., M.B. Camb., D.M.R.E., Junior Assistant Medical Officer to the Radiological Department of the Manchester Royal Infirmary.
SMITH, H. E., M.B. Aberd., Hon. Ophthalmic Surgeon to the Royal Aberdeen Hospital for Sick Children.
STERN, DAVID, M.B. Edin., Resident Medical Officer at the Royal Infirmary, Sunderland.
TAYLOR, E. FOLEY, M.B. Dubl., D.M.R.E. Camb., Assistant Radium Officer to the Cancer Hospital (Free), London.
THOMSON, W. A. R., M.D., Paterson Research Scholar and Chief Assistant in the Cardiac Department of the London Hospital.
UNSWORTH, S. V., M.B. Liverp., F.R.C.S. Eng., Visiting Surgeon for the Mill-road Infirmary, Liverpool.

Queen Charlotte's Maternity Hospital, London.—The following appointments are announced:—
HARRIS, B. P., M.B. Camb., Senior Resident Medical Officer;
MACKENZIE, K. F., M.B. Dub., F.R.C.S. Irel., Assistant Resident Medical Officer;
ROGERS, KATHARINE C., M.R.C.S. Eng., Resident Anæsthetist and District Resident Medical Officer; and
CANN, A. M. R., M.B. Lond., Resident Anæsthetist.

London County Council Hospital Staff.—The following appointments, promotions, and transfers are announced. A.M.O.(I.) and (II.) = Assistant Medical Officer, Grades I. and II.
THOMPSON, C. G. K., M.B. Edin., A.M.O. (I.), Brook;
MCGRATH, W. S., M.B. Sydney, F.R.C.S. Eng., A.M.O. (I.), St. Giles';
MARR, J. A. S., M.B. Cape Town, F.R.C.S. Eng., A.M.O. (I.), St. Nicholas';
HOARE, C. M., M.B. Lond., A.M.O. (I.), Fulham;
STONE, D., M.R.C.S. Eng., A.M.O. (I.), Lambeth;
MACRAE, D. J., M.D., F.R.C.S. Edin., A.M.O. (I.), St. George-in-the-East;
FRAZER, T. A., M.D. Aberd., A.M.O. (II.), Archway;
SMITH, S., M.B. N.Z., A.M.O. (II.), Bethnal Green;
ROSS, A. G., M.B. Belf., A.M.O. (II.), St. Andrew's;
DENNISON, F. R., M.D. Lond., D.P.H., A.M.O. (II.), Colindale;
FURST, H. C., B.Sc., L.R.C.P. Edin., A.M.O. (II.), Lambeth;
ARTHUR, J. B., M.B. Edin., A.M.O. (II.), Dulwich;
GREENFIELD, L., M.B., A.M.O. (II.), St. Luke's (Chelsea);
SHERRIFF, G. G., M.B. Edin., A.M.O. (II.), St. Stephen's;
BRADBURY, E., B.Chir. Camb., A.M.O. (II.), St. Mary, Islington;
FITZGERALD, W. E., M.B. Melb., A.M.O. (II.), St. Mary, Islington;
BANKS, M. H., M.R.C.S. Eng., A.M.O. (II.), St. An'rew's;
WHEATON, C. E. W., M.D., M.R.C.P. Lond., Senior A.M.O. (II.) St. Andrew's;
CROWE, E. V., M.B., F.R.C.S. Edin., Senior A.M.O. (II.), St. James's;
KAINES, G. E., M.B. Melb., Senior A.M.O. (II.), Dulwich;
JENNINGS, C. M., F.R.C.S. Edin., Senior A.M.O. (II.), St. Stephen's;
CARDNO, J. A., M.B. Aberd., A.M.O. (I.), Bethnal Green;
ANGLIN, A. F. W., M.D. Toronto, A.M.O. (I.), Colindale;
ROBINSON, M. H. B., M.B. Melb., A.M.O. (I.), St. Charles'; and
NICHOL, R. W., M.R.C.S. Eng., A.M.O. (I.), St. Giles' Hospital.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Sen. Res. M.O.
Aylesbury, Royal Buckinghamshire Hospital.—Sen. Res. M.O. £200. Also Second Res. M.O. £150.
Barnsley County Borough.—Asst. M.O.H., &c. £500.
Barry U.D.C. Surgical Hospital.—H.S. At rate of £200.
Beckenham, Bethlem Hospital, Monks Orchard.—Res. H.P. At rate of £150.
Belfast Royal Maternity Hospital.—Res. H.S. for Rea Block (Isolation). Also Res. M.O. At rate of £50 and £26 respectively.
Birmingham, Maryhull Colony Certified Institution.—Jun. Asst. M.O. £350.
Birmingham, Salterly Grange Sanatorium, near Cheltenham.—Med. Supt. £750.
Birmingham University, Dept. of Industrial Hygiene and Medicine. Research Worker and Lecturer. £600.

Birmingham University, Faculty of Medicine.—Lecturer in Bacteriology and Asst. Bacteriologist in Public Health Laboratory. £400.
Blackburn Royal Infirmary.—Res. Surg. O. £250. H.S. £175. Also Cas. O. £150.
Bolton Royal Infirmary.—Two H.S.'s. Each £125. Also Hon. Physician for Diseases of the Skin. £100.
Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £120.
Bristol General Hospital.—Two H.P.'s, two H.S.'s, Res. Obstet. O. H.S. to Spec. Depts. Also Cas. H.S. Each at rate of £80.
Burnley, Municipal General Hospital.—Jun. Res. M.O. £150.
Buxton, Devonshire Royal Hospital.—H.P. Also Asst. H.P. At rate of £200 and £150 respectively.
Carshalton, Surrey, Queen Mary's Hospital for Children.—Asst. M.O. £350.
Chester Royal Infirmary.—H.S. At rate of £150.
Chesterfield and North Derbyshire Royal Hospital.—H.S. to Ear, Nose, and Throat and Eye Depts. At rate of £150.
Children's Hospital, Hampstead, N.W.—Asst. Ear, Nose and Throat Surgeon.
Derbyshire Hospital for Sick Children.—Res. H.S. At rate of £130.
Doncaster Royal Infirmary.—H.S. to Eye and Ear, Nose, and Throat Depts., Cas. H.S. Also H.S. Each £175.
Eastbourne, St. Mary's Municipal Hospital.—Res. H.S. £150.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Res. Obstet. Asst. At rate of £50.
Fulham Borough Council.—M.O.H. £1100.
Golden Square Throat, Nose, and Ear Hospital, W.—Hon. Anæsthetist.
Guildford Royal Surrey County Hospital.—H.S. £150.
Halifax Royal Infirmary.—Fourth H.S. At rate of £150.
Hammersmith District Nursing Association, 10, Mall-road, W.—Anæsthetist.
Hampstead General and North West London Hospital, Haverstock Hill, N.W.—H.S. At rate of £100.
Harrogate Royal Bath Hospital.—Res. M.O. £156.
Hastings, Royal East Sussex Hospital.—Jun. H.S. At rate of £150. Also Hon. Asst. Physician.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res. H.P. At rate of £100. Also Asst. Physician.
King Edward VII Sanatorium, Midhurst.—First Asst. M.O. £500.
King's College Hospital.—Radium Registrar.
Leyton Borough.—Temp. Asst. M.O. 10 guineas per week.
Liverpool, David Lewis Northern Hospital.—Cas. O. £120. Also H.S. and H.P. Each £80.
Liverpool, Royal Infirmary.—Medical Tutor and Registrar. £140.
London Hospital, E.—First Asst. to Gynæcological and Obstetric Dept. £250.
London University.—External Examinerships. Chair of Dental Prosthetics at Guy's Hospital Med. School. £1000. Also University Readership in Anatomy. £550.
Macclesfield General Infirmary.—Second H.S. At rate of £150.
Manchester Ancoats Hospital.—H.S. At rate of £100.
Manchester Ear Hospital, Grosvenor-square, All Saints.—H.S. At rate of £150.
Manchester Royal Infirmary.—Res Clin. Pathologist. £100.
Manchester Victoria Memorial Jewish Hospital, Cheetham.—Clin. Pathologist. At rate of £250.
Manor House Hospital, Golders Green, N.W.—Jun. M.O. £200.
Milnathort, Kinross-shire, Ochil Hills Sanatorium.—Asst. M.O. £250.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Morning List Anæsthetist. At rate of £250. Also Anæsthetists, 12s. 10d. each afternoon.
Newport, Isle of Wight County Mental Hospital.——H.P. At rate of 150 guineas.
New Zealand, General Hospital, Auckland.—Sen. Surg. O. Also Sen. Med. O. Each £650.
Preston, Sharoe Green Hospital.—Sen. and Jun. Res. M.O.'s. At rate of £200 and £100 respectively.
Preston and County of Lancaster Queen Victoria Royal Infirmary. Special H.S. At rate of £150.
Princess Elizabeth of York Hospital for Children, Shadwell, E.—H.P. and H.S. Each at rate of £125.
Princess Louise, Kensington Hospital for Children, St. Quintin-avenue, W.—H.S. At rate of £100.
Putney Hospital, Lower Common, S.W.—Jun. M.O. At rate of £100.
Reading, Royal Berkshire Hospital.—H.S. Also Cas. O. Each at rate of £125.
Royal Northern Hospital, Holloway, N.—H.P. and H.S. Each at rate of £70.
St. Giles Hospital, Brunswick-square, S.E.—Asst. M.O. £350.
St. Mary Abbots Hospital, Marloes-road, Kensington, W.—H.P. At rate of £120.
St. Pancras Hospital, N.W.—Asst. M.O. £250.
St. Thomas's Hospital Medical School.—Demonstrator in Physiology. £400.
Sheffield Royal Infirmary.—Two H.S.'s. One H.P. Aural H.S. Ophth. H.S. Asst. Cas. O. Each at rate of £80. Also Clin. Asst. to Radiological Depts. £300.
Shrewsbury, Royal Salop Infirmary.—Two Res. H.S.'s. Each at rate of £160.
Southampton, Borough General Hospital.—Jun. Res. M.O. £200.
Southend-on-Sea County Borough.—Med. Supt. for Council's Infectious Diseases Hospitals. £750.
Southend-on-Sea General Hospital.—H.S. to Orthopædic and Cas. Dept. £100.
South London Hospital for Women, Clapham Common, S.W.—H.S. At rate of £100.
Stafford, Staffordshire General Infirmary.—H.P. and Cas. O. At rate of £150.
Stirling District Mental Hospital, Larbert.—Jun. Assist. M.O. £300.
Sunderland Children's Hospital.—H.S. £120.
Sutton and Cheam Hospital.—Asst. Res. M.O. At rate of £100.
Swansea Cefn Coed Hospital.—Asst. M.O. £350.
Swansea General and Eye Hospital.—H.S. At rate of £150.
Weston-super-Mare General Hospital.—Res. H.P. £150.
Wigan, Royal Albert Edward Infirmary and Dispensary.—Res. Med. and Surg. O. and Reg. £250. Also H.S. At rate of £150.
Willesden General Hospital, Harlesden-road, N.W.—Hon. Clin. Assts. for Out-Patient Dept.
Windsor, King Edward VII Hospital.—Three H.S.'s. Each at rate of £100.
Wolverhampton, Royal Hospital.—Res. H.S.'s to Special Depts. Also Asst. Res. M.O. Each at rate of £100. Also H.P. At rate of £125.
Worcester Royal Infirmary.—H.P. Also Jun. H.S. £160 and £120 respectively.
York City.—Asst. M.O.H. At rate of £350.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Hatfield, Hertfordshire.

Births, Marriages, and Deaths

BIRTHS

DONOVAN.—On June 7th, at a nursing home, Birmingham, the wife of Hugh Donovan, F.R.C.S. Eng., of a daughter.
FISH.—On May 29th, at Brentwood, the wife of R. Huxley Fish, M.B. Camb., M.R.C.P. Lond., of a son (Daniel).
HAVARD.—On June 9th, the wife of R. Emlyn Havard, D.M. Oxon., Oxford, of a son.
LLOYD.—On June 2nd, at Towyn, Merionethshire, the wife of J. H. Marshall Lloyd, M.B. Lond., of a son.
MILLS.—On June 4th, the wife of J. Denholm Mills, B.M. Oxon., of Seaford, of a son.
MORGAN.—On June 2nd, at Ashfield, Crickhowell, Breconshire, the wife of J. L. Morgan, B.Chir. Camb., of a daughter.
TURNER.—On June 7th, at Devonshire-place, the wife of Ronald Turner, M.R.C.S. Eng., of a son.

MARRIAGES

BUXTON—BRAGG.—On June 1st, at St. Paul's Church, Portman-square, Kenneth Leonard Buxton, F.R.C.S. Eng., of North Mimms, Herts., to Agnes Josephine Bragg, daughter of the Rev. Dr. and Mrs. T. Bragg, of Christ Church, Lowestoft.
CRAIG—GARRETT.—On June 1st, at St. Margaret's Church, Leiston, Daniel Mackinnon Craig, M.R.C.S. Eng., of Framlingham, Suffolk, to Phyllis Clifton, youngest daughter of Lieut.-Colonel and Mrs. F. Garrett, of Leiston, Suffolk.
PATERSON—GIBSON.—On June 1st, at Holy Trinity Church, Clifton, Derbyshire, William S. Paterson, M.D. Glasg., of Glasgow, to Flora, daughter of the late Mr. Christopher Gibson, Mayfield, Ashbourne.
REAH—ROBERTS.—On June 5th, 1935, at St. Mary's Church, Conway, North Wales, Thomas Glen Reah, M.D., M.R.C.P., elder son of Mr. and Mrs. J. Carter Reah, of Stockton-on-Tees, to Ruth M. Roberts, youngest daughter of the late D. and Mrs. Roberts, of Conway, North Wales.
RICE—SLATER.—On June 6th, at St. Michael's Church, Blackheath, Hugh D. C. Rice, M.R.C.S. Eng., to Kathleen Mary, third daughter of Mr. and Mrs. Harold Slater, of "Colynton," Orpington, Kent.
STERN—GILDARD.—On June 4th, at St. Columba's, Pont-street, David Michael Stern, F.R.C.S. Eng., of Dollis Hill-lane, N.W., to Eileen Freya Macleod, second daughter of the late Mr. J. Graham Gildard, of Glasgow, and Mrs. Gildard, of Frognal, N.W.
WALKER—CASSIE.—On June 8, at St. Peter's Church, Bayswater, C. G. Walker, M.D. Aberd., Oxted, Surrey, to Barbara Bathea Cassie, Stanley-gardens, London.

DEATHS

BIGGS.—On June 3rd, at Barnstaple, John Maundy Biggs, L.R.C.P. Lond., L.S.A., in his eightieth year.
BRAITHWAITE.—On June 7th, at Brackley, the result of a motor accident, Norman Braithwaite, M.B. Durh., aged 41.
GOLDIE.—On June 4th, at Upper Wimpole-street, W., George James Goldie, L.D.S., L.R.C.P. Edin., formerly of Merrion-square West, Dublin.
HICKEY.—On June 4th, at Plymouth, Major A. J. Hickey, M.C., M.R.C.S. Eng., R.A.M.C., of Kilkee, County Clare, I.F.S.
HOME.—On June 9th, at Yew Tree-road, Southborough, Kent, William Edward Home, O.B.E., B.Sc., M.D. Edin., Fleet Surgeon, R.N., Retired, in his seventy-fifth year.
MORTON.—On June 6th, at the Governor's House, Holloway Prison, N., John Hall Morton, M.D., T.C.D.
ROBERTS.—On June 9th, Charles Roberts, F.R.C.S. Eng., of Didsbury and Manchester, age 60.
STOKES.—On June 5th, John Stokes, M.A., M.D. Durh., of Sheffield, in his seventieth year.
STUART-LOW.—On June 5th, at The Homestead, Northwood, William Stuart-Low, F.R.C.S. Eng., of Wimpole-street, aged 77.
SWINDALE.—On June 9th, at Glebe-place, Chelsea, suddenly, Henry Vernon Swindale, M.R.C.S. Eng.
TAIT.—On June 7th, at Handcross, Sussex, Henry Brewer Tait, F.R.C.S. Eng.
WILSON.—On June 3rd, at The Vicarage, Muker, Yorkshire, Horace Bagster Wilson, O.B.E., M.R.C.S. Eng., Vicar of Muker, aged 72 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

RADIOLOGY OF TUBERCULOSIS

AT a meeting of the North Western Tuberculosis Society held in Liverpool on May 30th, Dr. J. V. Sparks (London) read a paper on radiology in the diagnosis and treatment of pulmonary tuberculosis. In his opinion a case that was difficult radiologically was also usually difficult clinically and pathologically. Errors of interpretation in X ray films were due to films being poor in quality or too few in number and to undue bias, caused by a knowledge of the clinical data. It was necessary to obtain a correct amount of detail and correct density of films. Accurate control over the various factors of exposure was important to produce a correct and comparative density. A high milliamperage and low kilovoltage were desirable and a minimum time of exposure. As low as 1/100th sec. was practicable with modern apparatus. The focus of the X ray tube should not be too broad—a 6 kw. tube was big enough. At the Brompton Hospital a condenser apparatus had lately been installed, giving exposures of 1/30th second, variations in kilovoltage after measurement of patients alone being necessary. With this apparatus stereoscopy was not possible. Dr. Sparks then referred to the position of the patient and pointed out the various disadvantages of the upright, prone, and supine positions. He preferred to have patients seated rather than standing, and spoke well of the prone position. In any case, it was important to get the scapulæ out of the way. Variations in kilovoltage were important factors, and conspicuous changes in the appearance of films followed differences as low as 2 kv. The radiological diagnosis of tuberculosis depended on a recognition of tubercle formation, not on mottling or cavities.

X ray films, said Dr. Sparks in conclusion, should be interpreted as reports at autopsies were made—that is to say, uninfluenced by clinical observations. Personally, he did not advocate screening as a routine diagnostic procedure and found little help from stereoscopy.

FOOD SUPPLIES

IN the course of a Chadwick lecture delivered in London on June 6th, Sir John Russell, F.R.S., director of the Rothamsted Experimental Station, pointed out that human beings require a complex diet, including not simply the classical body-forming substances, the mineral substances, and the more recently discovered vitamins, but possibly also other substances. In the absence of full and precise chemical knowledge of foods and food requirements there was safety in a varied diet drawn from a variety of sources. By various devices the British farmers' share in the home market was now being pegged. At present this country produced about 15 per cent. of its wheat supply and about 40 per cent. of its other foods: the line could by suitable pegging be drawn elsewhere. In two directions further information was urgently needed. What were the relative advantages of fresh and of preserved or chilled foods as articles of diet? And on what principles in a world of manipulated markets should Great Britain select the sources from which to draw her foods?

SOME APPLICATIONS OF CHEMISTRY

THE Chemistry Research Board, which in 1927 succeeded the Chemistry Coördinating Research Board and took over its research laboratory at Teddington, has issued its first report to the Committee of the Privy Council for Scientific and Industrial Research (H.M. Stationery Office, 1*s.* 6*d.*). The 94 pages are mostly taken up by a summary of the work of the laboratory from its beginning, written by the director, Prof. G. T. Morgan, who in March retired from the presidency of the Chemical Society. Most of the matter is of general rather than medical interest. Some of it, such as the work on base-exchange methods of water-softening and a summary of present knowledge of the causes of plumbo-solvency of drinking waters, has been referred to in our columns. A special feature of the equipment of the laboratory at Teddington is the very fine apparatus constructed and used there for studying reactions (mostly with catalysts) at high pressures including one autoclave still in the experimental stages for 3000 atmospheres at 200° C. and several for 200 atmospheres at 300–400° C. Many interesting syntheses, e.g., of methyl and ethyl alcohols from hydrogen and carbon monoxide, and acetic acid from methyl alcohol and carbon monoxide, have been effected in this way. Of more direct medical interest is the work on chemotherapy. Two new series of quinquivalent arsenical compounds have yielded promising results as trypanocides and 500 grammes of succinamido-methyl-amide-p-arsenic acid has been sent for clinical trial at the Liverpool School of Tropical Medicine and in Nigeria. Various other compounds have been tested against trypanosomiasis and malaria and for antiseptic properties by Profs. Warrington Yorke, D. Keilin and C. H. Browning respectively. The most promising results have been obtained in antisepsis: quaternary salts from *o*-, *m*- and *p*-aminophenyl-phenanthridines are moderately powerful antiseptics in peptone-water and in serum, whilst similar salts from 3-amino-9-methyl-phenanthridine are powerful antiseptics in serum especially against *B. coli* but are impotent in peptone-water. Other derivatives of this group have yielded promising results and attempts to synthesise new types continue. Search has been made for a non-metallic substance to replace vulcanite for denture purposes and for an adhesive material to be used as a dental lute and cement.

WOUNDS OF THE HEART

AN unusual case of foreign body in the heart was quoted in our issue of March 30th (p. 745), and it may be of interest to describe two other cases of cardiac wounding lately reported from Rumania by J. Jianu (Rev. de Chir. de Bucarest, 1935, xxxvii., 567).

The first patient received a shell wound during the late war, and was operated on as an emergency three-quarters of an hour later. On admission to hospital the pulse was fairly good, and the area of cardiac dullness normal; there was a lacerated wound in the precordial area with comminution of the upper part of the sternum and corresponding ribs. The skin wound was excised, loose pieces of bone and metal being removed, and parts of the sternum and of several ribs were resected to expose the pericardial sac, which showed a wound in its upper part. This wound was enlarged, and several clots removed from the cavity of the sac. A small fragment of metal was then seen embedded in the wall of the right auricle. As it was impossible to determine whether or no it had penetrated the wall, a purse-string suture of linen thread was introduced around it, and drawn tight as the fragment was extracted. The projectile was wedge-shaped and about 5 mm. long. The pericardium was closed without drainage, and the outer wound was treated by the Carrel-Dakin method. The patient died five days later however from mediastinitis.

The second case was that of a youth 19 years old, who was admitted to hospital with a stab-wound in the precordium. He was unconscious on admission but quickly recovered, and as no abnormal signs could be detected it was concluded that the wound was superficial and he was discharged four days later. A fortnight afterwards, however, he began to have pain in the precordial and epigastric regions, increased by coughing and by taking food, but somewhat relieved by vomiting. He was readmitted to hospital as a case of pericarditis, with engorgement of the veins of the neck, greatly enlarged area of cardiac dullness, distant heart sounds, a precordial rub, a pulse-rate of 90, and generalised bronchitis. At operation, preliminary puncture of the pericardial sac yielded altered blood, and on turning back a flap of the chest wall, the sac was found to be enormously

distended and to contain more than a litre of black, altered blood. The heart was almost completely covered with organised clot, and on removing this a wound 5 mm. long, which immediately began to bleed, came into view on the anterior wall of the right ventricle, close to the apex. The heart was grasped in the left hand and the wound closed in three layers with interrupted sutures of catgut. The pericardial sac was cleansed, and closed with drainage. The flap was sutured back into position. The patient died six days later from broncho-pneumonia, and at post-mortem it was found that the wound in the heart was healed.

Jiano points out that in early cases there may be little or nothing in the physical signs to indicate a wound of the heart. He emphasises the importance of keeping all cases of precordial trauma under observation, and of early resort to operation if a wound is suspected.

THE RED CROSS EMBLEM

By the laws and usages of war the Red Cross flag is hoisted over medical establishments, but it must not be used to cover the transport of ammunition or non-medical stores; rifles must not be fired from a Red Cross tent and hospitals must not be used as observation points. The Geneva Convention of 1906 for ameliorating the condition of the wounded and sick of armies in the field was ratified by Britain with a reservation for Articles 23 and 27 which forbade the the use of the Red Cross emblem except to indicate a military medical service. In 1911 Parliament passed an Act to give effect to the Convention; it prohibited the use of the Red Cross emblem or of the words "Red Cross" in a trade or business or for any other purpose without the authority of the Army Council. Our reservation as to Articles 23 and 27 was withdrawn on July 7th 1914. Questions of the abuse of the Red Cross in war-time by combatant countries have been debated by international lawyers of high repute; there was, for instance, a controversial incident in the battle of Mukden in 1905 over which academic opinion has been divided. A more pacific instance has now to be recorded. A hundred years ago a hostelry at North Cray in Kent was named the Red Cross Tavern. Twenty-four years after the passing of the 1911 Act, the vigilance of the War Office has detected this as an infringment of the Geneva Convention. At the recent licensing sessions at Bromley the justices were asked to sanction the change of the name of these licensed premises from the Red Cross to the White Cross Tavern. The bench asked cautiously if the new title involved any latent contravention of the law. The applicant said he hoped it did not, but he could not guarantee what the next 24 years might bring forth.

AN ITALIAN REVIEW OF PREVENTIVE MEDICINE

In terse and picturesque language a little Italian manual[1] covers the whole field of preventive medicine, explaining in the simplest manner, but with accuracy, the rationale of public health measures, as well as that of the old-fashioned rules of bodily health. It appears that even under the paternal government of Mussolini cooks still prepare salads with unwashed hands; tuberculous nursemaids kiss the baby; the bath in municipal houses is used for clothes, not bodies; the sun is shut out from the children in order to spare the carpets; and the author of a manual on preventive medicine finds it necessary to plead: "Why not buy a cheap vacuum-cleaner instead of a cheap radio—it is so much less disturbing to the neighbours!" It appears also that, though the six-year-olds of the Roman Campagna can recite: "Malaria is a parasitic disease, caused by a protozoa in the blood and transmitted by a mosquito, the anopheles," yet their parents still leave stagnant water behind their houses for these same mosquitoes to breed in. Dr. Pampana begins with the need for physical cleanliness, including the daily bath (h. and c.), not forgetting the perils of the bathroom, "the most dangerous room in the house" from such causes as the cold bath immediately after a meal, the enervating effect of the overheated bath, the poisonous fumes of geysers, and the slippery floor. He passes on to the preparation of foods, to the principles of inoculation against infectious diseases, the early diagnosis of cancer and of those hidden septic foci which are said to be responsible for "rheumatic" diseases. To attain these latter goals he advises annual overhaul by a doctor, in favour of which he quotes certain insurance statistics; but he does not omit a warning against introspection and fear, reminding us that the emotions induced by a study of our own pulses can be factors in keeping up a blood pressure we desire to reduce. There is an admirable chapter on sex and the prophylaxis of venereal diseases. Idleness and overwork are both classed as undesirable luxuries to be avoided, and the author stresses the value of the Britisher's "hobbies." Referring to the campaign against tuberculosis, he recommends the Italian system of insurance against this disease, which promises in a few years to render possible the treatment of every case under ideal conditions. He considers the isolation of contagious cases from the healthy members of their families an essential measure, and supplies the interesting table of precautions against the spread of tuberculosis, which has been issued to the Italian public. Dr. Pampana's precepts are fundamentally those of common sense.

[1] Vita Piu Sana e Piu Lunga. Libro d'igiene dedicato alle persone colte. By Emilio J. Pampana. Roma: Annali d'igiene. Pp. 114. Lir. 12.

SWIMMING-BATH DEVELOPMENT

Last month the National Association of Bath Superintendents held its annual conference at Hastings where for many years there has been a large system of swimming and other baths on the sea front, recently remodelled on sound lines, besides a large open-air bath on the shore at St. Leonards. A paper read at the conference by Messrs. E. Copeland Snelgrove, H. C. Husband and A. H. Clark struck a bold line worthy of consideration. It is of no use, they suggest, connecting the idea of swimming baths with that of town and country planning unless and until a status is achieved by a minimum of hygienic safety and attractive conditions introduced by statute into swimming bath practice and location. The present indifference to bathing is due, they think, to their unpleasant atmosphere (unless of open-air type) to their inadequate sanitary accommodation and memories of still worse things, to the dangerous state of the surface water, and to their generally unhappy situations in sordid areas or adjacent to public houses. There is without question a strong case for making swimming baths attractive places of public resort and safeguarding bathers by regulations dealing with preliminary ablution, including perhaps a sterilising shower to render costumes innocuous, with the purity of the water and with proper dressing accommodation. Then, as the authors would like, baths might be provided on a pro-rata basis for population. The locality should be well chosen and licensed premises, if desired, included in the bath compound. This will cost money but at the present rate of increase of popularity the bath may become as profitable as the cinema. Some, however, will still prefer the quiet river or the less frequented parts of the sea shore.

LOUSY BUT LOYAL

Across a small street in one of London's humbler quarters, gaily decorated with bunting, paper wreaths, and natural flowers to demonstrate the jubilee sentiments of the dwellers, there floated a large label bearing the above inscription. The story is vouched for by a medical eye-witness, and the humorous pathos of the label deserves this little publicity.

In reply to queries we give the following address: The Lord Kitchener Memorial Fund, 34, Norfolk-street, London, W.C.2. Information concerning the Kitchener scholarships will be found in THE LANCET of May 25th, p. 1229.